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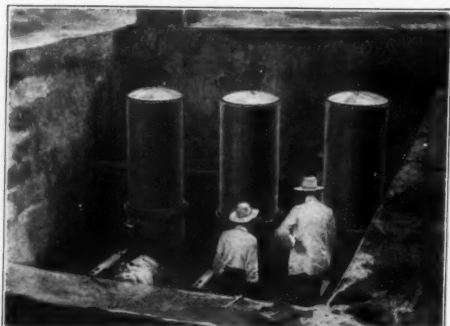


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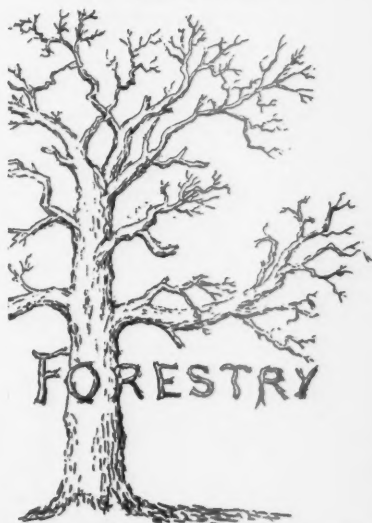
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# CONSERVATION

OFFICIAL MAGAZINE  
OF THE  
AMERICAN FORESTRY ASSOCIATION

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# The American Forestry Association

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The American Forestry Association was organized in 1882, and incorporated in January, 1897. It now has over 7,000 members, residents of every State in the Union, Canada, and foreign countries. From its organization it has been the tireless friend of the forests.

The object of the Association is to promote the preservation, by wise use, and the extension of the forests of the United States; its means are agitation and education; it seeks to encourage the application of forestry by private owners to forest holdings, large or small; and it favors, especially, the establishment and multiplication of National and State forests, to be administered in the highest interests of all.

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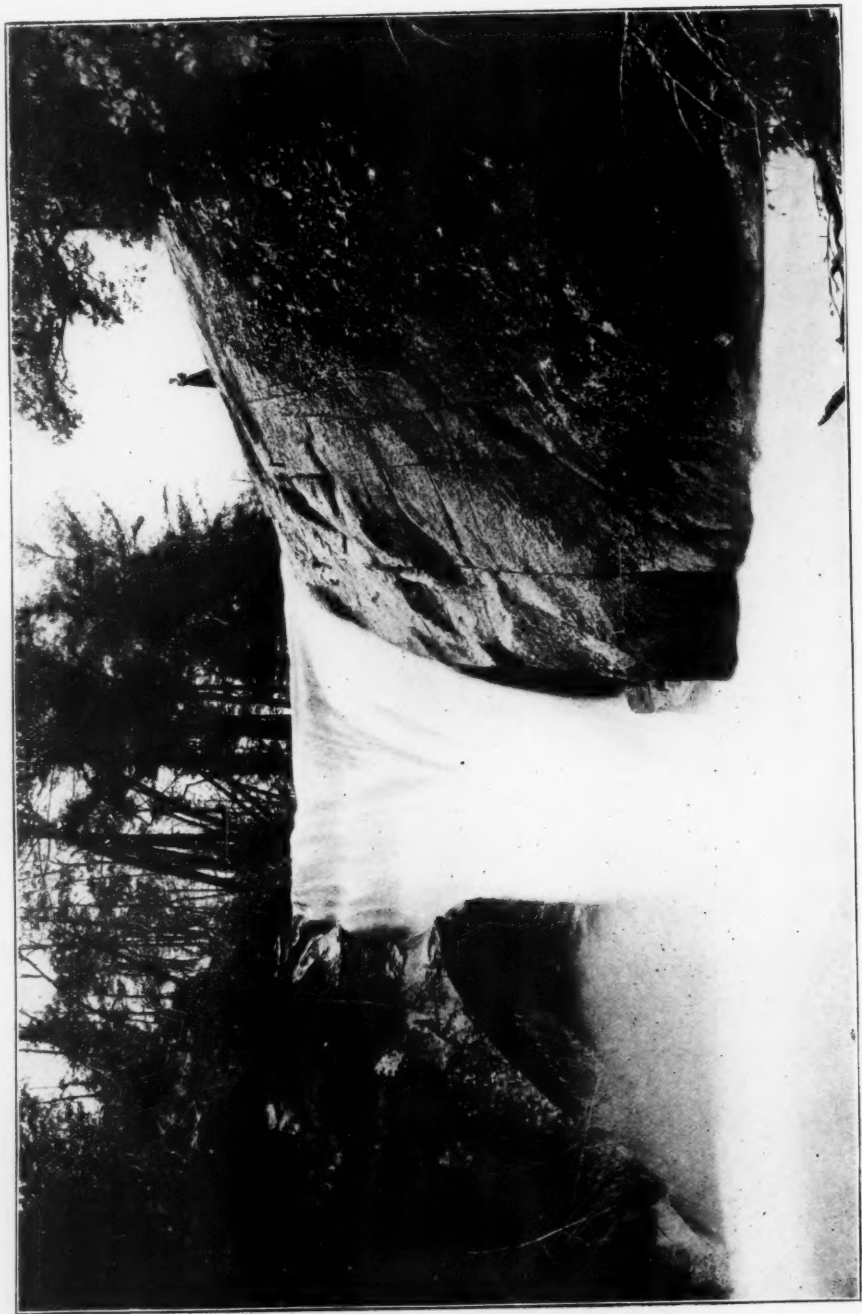
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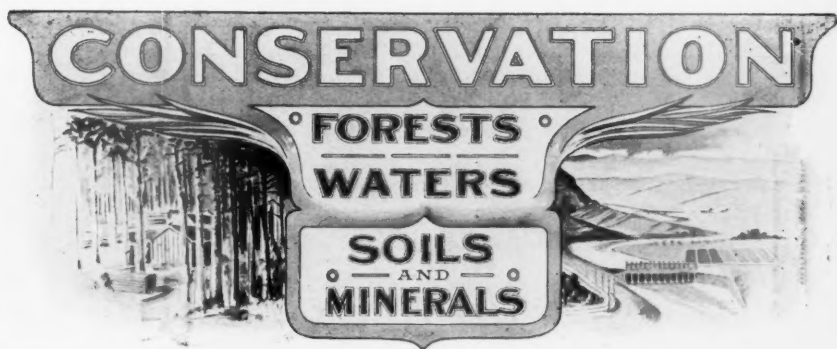
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Falls of Elk Creek, near Cranberry, N. C.



Vol. XV

DECEMBER, 1909

No. 12

## FORESTRY IN JAPAN

By BARRINGTON MOORE, M. F., United States Forest Service

### I—INTRODUCTION

**D**URING the last five or ten years the civilized nations of the West have been watching with open-eyed amazement the astounding achievements of the Japanese in all lines of material progress. Forestry, now generally recognized as one of the most important factors in the development of any civilized nation, has been little thought of because eclipsed by the more spectacular feats of this remarkable people. Yet fully as much substantial progress has been made in forestry as in anything else which they have undertaken. In the short space of a magazine article it cannot be expected to give more than a brief general idea of the conditions of this important science in Japan.

Among the factors influencing the development of forestry, aside from outside influence two stand out pre-eminently as the key to most of the others. The first of these is the smallness of the islands and the consequent over-crowding of the population. Not only are the islands small, but also only twelve per cent of this small area is agri-

cultural, the remainder being too hilly to farm. The result is that to support such a large population every foot of land must be productive. If it cannot be made to produce a crop of rice it can be made to produce a crop of trees. The second factor is the despotic form of government which prevailed until recently. Under the iron rule of the old Daimyos (feudal lords) the depredations of the individual in the forests were kept severely in check. Forestry in Japan must not be thought of as a brand new science transplanted there bodily at the time of the opening of the country. Forest protection had been enforced under the despotic Daimyos since the ninth century, and some form of management had been practised for the last 300 years. In one case at least this old management was remarkably well advanced and intensive (in the Yoshino private forests). Of course forestry received a great impulse after the opening of the country and was greatly influenced by European ideas, but the foundation was there long beforehand.

For the sake of clearness the forests will be considered under three heads:



Private Forests of Yoshino. View of the Valley of the Yoshino River. An Excellent Example of the Combination of Forestry and Agriculture. The Bottoms Cultivated, and Slopes Covered with Plantations of Trees



Private Forests of Yoshino. Plantation of *Cryptomeria* (*Cryptomeria Japonica*) a Hundred Years Old





Imperial Forests of Kiso. A Typical Piece of the Coniferous Type Shinoki (*Chamaecyparis obtusa*), Shiba (*Thujaopsis dolabrata*), and Sawara (*Chamaecyparis pisifera*) near Top of Slope (Page 732)



State Forests of Nagakizawa. A Typical Piece of the Fine Stand of *Cryptomeria* Comprising This Forest. This Would Run Forty to Fifty Thousand Board Feet per Acre. It Is as Yet Uninjured by the Sulphur Fumes (Page 739)

(1) Private, (2) imperial, and (3) state. The proportionate of these in round numbers are: Private, 23,000,000 acres; Imperial, 6,000,000 acres; State, 29,000,000 acres.

#### II—PRIVATE FORESTS

The most important of these are in what is called the Yoshino region (named from the Yoshino River), in Yamato Province. This region presents a spectacle absolutely without parallel anywhere in the world. It is a rugged and hilly country with but an insignificant amount of land on which farm crops can be raised, and yet it supports a large and extremely prosperous population because every inch of these slopes is covered with trees. The remarkable feature of the region is that the whole area is divided up into small pieces each owned by a different man. It is an ideal community of prosperous small owners (an excellent example of what our own western communities can be made into by the continuance of the present policy of the Forest Service to favor the small owner and to develop as large a number of small homesteads as possible in and around the National Forests).

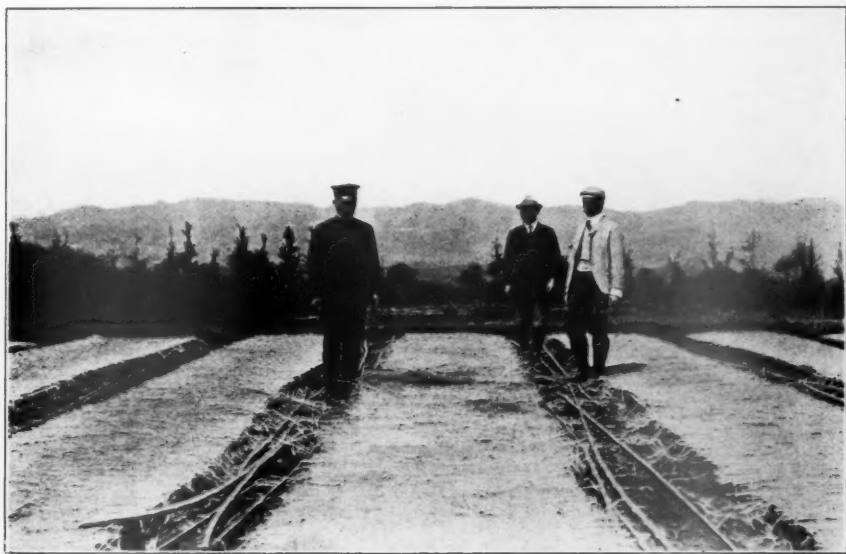
It is said that 500 years ago there was absolutely no timber in the region, so that the people were forced to plant enough for their own use. They happened to grow a little more than they actually needed and threw the surplus into the river to be sold down below. This was found to be very profitable, so that everybody started planting trees. The result is that growing trees is today the main industry of the region. There are practically only two species used, the Cryptomeria (*Cryptomeria Japonica*) and Shinoki (*Chamaecyparis obtusa*), both conifers. The Cryptomeria does not resemble any tree in the United States, but the Shinoki is very much like our northern white cedar or Arbor Vitæ (*Chamaecyparis thyoides*) except that it produces a much finer and stronger wood. The Cryptomeria grows on the moister sites, and the Shinoki on the drier. The system of silviculture is entirely clear cutting

and planting, using three-year-old Cryptomeria plants and four-year-old Shinoki, spacing as close as three by three feet. Thinnings begin at twelve years and are repeated every three or four years till the stand is twenty-four years old. After that they are repeated at intervals of five years till the stand is forty-five years old, then at less frequent intervals till the final cutting, at 100 years. These thinnings are possible on account of the excellent market, which makes even the smallest sizes salable, and the easy water transportation. They are done with such extreme care and such a high degree of skill that they are even better than a great many of the thinnings in the well-managed forests of Germany.

There are not many elaborate theories in Yoshino, and there is no cumbersome mass of office work, on account of the peculiar condition of ownership; but the actual practise of forestry in the field is more intensive than anything to be found in Europe, strange as this may sound to foresters accustomed to look up to Germany as the home of all intensive forestry. For example, in stands forty to fifty feet high, which had been somewhat bent by the snow, the trees were tied back with ropes fastened to the tops of the trees *forty feet from the ground*. The amount of labor in carrying out such an operation can easily be imagined. Also, some high, rocky slopes were planted which were so bare that even the *soil had to be carried up there to plant the trees in*. Another site was seen which was so steep that men had to be *actually lowered by ropes* down the face of the cliff to do the planting. It is claimed by one of the owners that the returns are higher than anywhere in the world, being \$17 per annum per acre, compared with \$5.30 for Saxony. This is too high, because he failed to figure in the interest on his investment. But even so the returns are remarkable because of the almost perfect combination of favorable conditions, fairly fertile soil, abundant moisture, a ready market, and cheap transportation, together with very cheap labor. Another noteworthy feature of



Private Forests of Yoshino. Four Ages on a Single Acre. Plantations One Year Old, Four Years Old, Eighteen Years Old and Fifty-seven Years Old. This Looks Like Any Well-managed Forest in Germany (Page 730)



State Forest of Takabagi. Seed Beds Covered with Mulch of Rice Straw (Page 738)

this wonderful region is that there is a company of consulting foresters who advertise that they will apply their 300 years' experience to any forest problem.

Thus we find in Yoshino the oldest and most intensive forestry in the world, an absolutely natural growth untouched by outside influences, resulting from an absolutely unique combination of conditions.

### III—IMPERIAL FORESTS

The best Imperial Forests are those commonly known as the Kiso forests. These are three forests with a total area of approximately 60,000 acres, situated in about the middle of the main island of Japan. They are in a rugged, mountainous country, from about 1,000 to 6,000 feet in elevation, made up of very steep slopes and narrow, rocky gorges. The soil, where there is enough of it, seems to be of very fair fertility, and there is an abundance of moisture (eighty inches rainfall). There are only three distinct natural types as far as could be observed. These are: (1) along the stream beds and less precipitous lower slopes, a forest of mixed hardwoods with occasional conifers; (2) on the middle slopes an even mixture of hardwoods and conifers, more or less in groups; (3) on the steep, upper slopes practically pure conifers. Among the hardwoods a species of birch (called Misume), almost like our yellow birch (*Betula lutea*), formed sixty per cent of the stand. The rest was made up of a kind of chestnut, a white oak (very much like *Quercus Alba*), a maple, Magnolia and a cherry. In fact this hardwood type might have been anywhere in the eastern United States from all appearances.

The coniferous forest is made up of three principal species, all of them very much like our northern cedars (*Chamaecyparis* and *Thuja*), in the general appearance of the bark and leaves. The most important of these is the Shinoki (*Chamaecyparis obtusa*), the same as the one planted in the private forests of Yoshino, forming forty per cent of the stand in the original forest. The other two, both of which have soft,

coarse wood, are: Sawara (*Chamaecyparis pisifera*, forty per cent of the stand) and Shiba (*Thujopsis dolabrata*, ten per cent). The remaining ten per cent is made up of other less important conifers.

That part of the forest cut over under the old regime has come up in almost pure hardwoods. The tops of some of the hills thus cut over are now covered with a birch almost exactly like our poplar birch (*Betula papyrifera*).

These forests have been under some sort of management for about forty years. But only in the last twenty-five years has planting after felling been practised. The species planted is Shinoki. Until within the last five years this planting was done in a haphazard manner, with only 1,000 plants per acre, and was not followed up by cleanings. The result is that these old plantations are now mostly covered with hardwoods through which an occasional Shinoki has managed to struggle up. Within the last five years they have been using three-year-old plants, putting in about 2,000 to the acre, and have been cleaning the area before planting, and every year for five years after planting.

The present working plan was revised three years ago, and it is the intention to revise it every ten years. It is very closely modeled on the German working plans, giving everything in tabulated form. The rotation is figured as 120 years, with twenty-year felling periods, and ten-year subperiods. The whole forest is divided into working circles, compartments and sub-compartments, the subcompartments serving as the basis of the year's cut. The stand on the entire forest has been estimated, the yearly growth found, and the cutting regulated according to area and volume. They have two sets of maps made by a special bureau in Tokyo, one on a scale of 1-5,000, the other on a scale of 1-20,000. The utilization is curious on account of the lack of animals which is so characteristic of the whole of Japan. As they have no machinery to make up for this lack of animals, everything has to be done by "man-power." They have a tramway



State Forest of Uchimabe. Showing Stand of Pure Shiba (*Thuopsis delabrata*) Lightly Cut Over by the Daimyos (Feudal Lords), with Excellent Reproduction in the Opening (Page 739)

State Forest of Nagakizawa. Cutting Up a Felled Cryptomeria. This Tree Is Only About Medium Size for This Forest. Showing the Peculiar Kind of Saw Used (Page 739)





with a two-foot gauge run by gravity to take the logs from the logging area to the main stream, a distance of five miles. The logging area itself is so steep that an elaborate system of stops and slides has to be constructed to get the logs down. And they fell the trees across the slope instead of up or down for convenience in peeling and for the safety of the men.

The working plan and system of silviculture would compare favorably with almost any in Europe except that, perhaps, the formulas used for figuring the annual area and volume to cut were rather crude, considering the intensity of the rest of the management.

The only criticism of the system is the rigidity with which it is applied. Very steep, rocky slopes on which the forest should be managed as protection forest under some system which would keep the crown cover intact, are clear-cut and planted. The result is that on large parts of such slopes the cutting destroys the forest conditions so that planting becomes impossible. This point, however, may be looked at in another way. Under any system of natural reproduction the valuable Shinoki would be crowded out by the inferior Shiba on account of the poor power of reproduction of the Shinoki and excellent reproduction of the Shiba. Hence, from a strictly financial point of view, it may pay better to get a patchy forest of Shinoki than a solid one of Shiba.

#### IV—TRAINING

Before taking up the state forests it will be well to give some idea of the kind of training which foresters receive in Japan.

There is no regular forest school as such, but forestry is taught as one of four parallel courses in the College of Agriculture in the University of Tokyo. The four parallel courses are: (1) Agriculture, (2) agricultural chemistry, (3) forestry, and (4) veterinary medicine. Of course, this is the same thing as having a forest school.

The staff consists of five professors, three assistant professors, and one lec-

turer on law. These men are for forestry alone, not for the other courses as well.

The course extends over three years, covering very completely all the subjects in technical forestry, and the allied sciences. Before entering the forestry course, a man must have been three years in a "higher school." This is not like our "high schools," but much more advanced, more like our ordinary colleges. A man is generally about twenty when he graduates from one of these higher schools and enters the university. Thus the course in forestry is practically a post-graduate one and is built on a good, broad foundation. In addition to the four parallel courses mentioned above, there are three subsidiary courses in agriculture, forestry, and veterinary medicine. For forestry this subsidiary course extends over three years, has the same staff of instructors as the higher course, and practically the same subjects. The only difference is that the three years in the higher school are not required before entering (admission being by competitive examination), and therefore there is not the same foundation to build on. Unfortunately, there is a rush for the subsidiary course, three times as many applying as can be admitted, while there are not enough for the higher course. The courses, both higher and subsidiary, are all influenced by German methods, and even a certain amount of teaching is in the German language. All the technical phraseology is German.

The university is very fortunate in the matter of college forests, owning five in all, aggregating 206,509 acres. Of these, one of 5,421 acres is within easy reach of Tokyo, and serves for giving the men practical field training. Of the others, one of 57,000 acres is on the Island of Hokkaido, or Yezo, to the north, and serves only as a field for special investigations of the individual students or professors, and the other, of 144,000 acres, is on the Island of Formosa, and is practically untouched. Most of the vacations are spent in touring through the different forests of the country.



Imperial Forests of Kiso. An Example of Too Rigid Application of the System of Clear Cutting and Planting. Steep Slope Clear Cut, Where There Should Be Protection Forest (Page 732)



State Forest of Takahagi. Slopes Formerly Bare, Now Planted with Shinoki (Page 738)

The whole university, as well as the higher schools (which are attended only by men who are going to enter the university) are government institutions. Therefore, a man is admitted directly from the forestry course into the government service without further examinations. In addition to the forest courses in the University of Tokyo, every province has a forest school. These are much higher than ordinary ranger schools. The one seen, in Yamato Province, near the private forests of Yoshino, was a combination agricultural and forest school with 200 students, about equally divided between the two branches (forestry and agriculture). The course took three years, and took in a large proportion of the necessary subjects.

Thus it can be seen that forest education is well advanced in Japan.

#### V—STATE FORESTS

##### *Historical*

A very brief outline of the history of forestry in Japan will serve to give an idea of its position to-day.

Under the old regime (the feudal system) rigid rules for protection and careful utilization were enforced in all forests, private as well as those belonging to the Daimyos. At the time of the restoration of the Mikado and abolition of the feudal system these strict rules were largely done away with, on private land at least, and considerable cutting was carried on. The state took over all the forests belonging to the Daimyos, but there was considerable confusion between the boundaries of these different Daimyo forests and between the Daimyo and private forests.

To remedy this a plan was drawn up in 1890, called the "First Adjustment Program." By this plan the state holdings were to be consolidated by the sale of small, isolated bodies of forest of under 150 acres in extent and of land, whether forested or not, which was more suitable for agriculture than

for forestry. This program was to extend over fifteen years, from 1890 to 1904. In 1898 the program was revised and a special fund created from the proceeds of these sales. This fund was to be used in carrying on the work of adjustment, and demarcating the boundaries of the forests and purchasing such forests as were required, in mapping the forests, marking working plans, planting denuded areas and in permanent improvement. This fund will amount to \$11,500,000 in fifteen years, during which time it is expected that the work (readjustment, working plans, permanent improvements, etc.) will be completed. At present most of the forests have been demarcated and mapped, and have working plans made for them. The work of permanent improvement and planting denuded areas<sup>1</sup> is being vigorously pushed and will also soon be completed. This work is under a special branch in the Bureau of Forestry.

##### *Organization*

The main organization is practically identical with that of our own Forest Service. The Bureau of Forestry is under the Department of Commerce and Agriculture. There is a central office (Sin-rin-kioku) at Tokyo. The whole country is divided into ten major offices (Dai-rin-kuchos), corresponding to our districts. Under each major office are a number of minor offices (Sho-rin-kuchos), 300 in all, corresponding to our National Forests.

The head of the Bureau, Mr. Kamiyama, is a lawyer, as are also two of the ten heads of the major offices. The whole force consists of: twenty-six secretaries, men who have for the most part had a higher training in law at the University of Tokyo; ninety-eight higher trained men, 997 lower trained men (from the subsidiary forest course, or perhaps a provincial forest school), 970 ordinary clerks, and 1,428 rangers and guards. The higher trained men are generally in the major offices, or

<sup>1</sup>The planting which is paid for out of the special fund is only the planting of denuded areas. The regular planting following the cuttings is paid for out of the regular appropriation for the running expenses of the forests.



Imperial Forests of Kiso. One of a Series of Stops Built on a Steep Slope for Logging, with the Partly Completed Slide Being Built Up into the Stop (Page 733)



Private Forests of Yoshino. A Thirty-year-old Plantation of Shinoki (*Chamaecyparis obtusa*) Just Thinned (Page 730)

districts, and the lower trained men generally in the minor offices, or forests.

The organization of the different branches is somewhat different from ours. They have six branches:

1. Finance, personnel, and miscellaneous business.

2. Supervision of private forests. This branch takes in: (a) Cooperation with private owners; (b) care of protection forests, no matter to whom they belong;<sup>2</sup> (c) policing of private lands (against trespass, etc.); (d) dealing with forest corporations; (e) administration of forest law on all forests; (f) education.

3. Works: (a) Planting plans; (b) lumbering (all cutting is done by the government); (c) the disposition of all the products of state forests.

4. For the adjustment of state forests (this is only a temporary branch having charge of the work being done under the adjustment program, and will be done away with as soon as this work is completed): (a) Investigation, surveying, and making working plans; (b) distinguishing between forest and agricultural land, and disposing of the latter; (c) planting denuded areas.

5. Protection and management of state forests (corresponds to our branch of operation): (a) Supervision of major and minor offices; (b) protection and management; (c) dealing with profit-sharing plantations;<sup>3</sup> (d) investigation and giving back of private lands wrongfully taken from the people at the time of the Restoration in 1868; (e) dealing with litigations, both judicial and administrative.

6. Experiment station: (a) Utilization of forest produce; (b) forestry proper (silviculture); (c) collections of things made from forest materials, and of birds, insects, etc.

#### STATE FOREST OF TAKAHAGI

The first state forest visited was that of Takahagi, in the Tokyo Dai-rin-kucho (major office).<sup>4</sup>

This has an area of 60,000 acres covering part of a range of more or less gently sloping, rounded hills near the coast, with an elevation of from just above sea level to about 1,600 feet. It is practically all either poor, deciduous forest or bare slopes. When the forest was taken over by the state ten years ago 18,000 acres had been planted by the former management. During the ten years in which the Government has had charge 30,000 acres have been planted, and they expect to plant the remaining 12,000 in the course of the next three years.

The important thing to be seen at Takahagi was the large state nursery, the largest in Japan. It has an area of 150 acres and a capacity of 8,000,000 plants per annum. The species are mostly Shinoki (*Chamaecyparis obtusa*) and Cryptomeria (*Cryptomeria Japonica*) with a mixture of pine, chestnut, and elm. It supplies five other state forests in addition to Takahagi. A striking feature of the nursery is the fact that both Shinoki and Cryptomeria are transplanted every year.

The object is first to make the roots grow, and secondly, so as to save space, because labor is cheaper than land rent. This fact is very significant of the whole situation in Japan. Labor is cheap and land is dear, due to the over-crowded condition of the whole country. The cost of raising the plants is only \$2 per thousand for Cryptomeria and \$2.20 for Shinoki. In planting, they used to space five by five, but now they put them in six by six feet. Three-year-old plants are used. On account of the cheap labor (20 cents a day for a man putting in 450 plants) the total cost of planting is only \$3.10 per acre. Cleanings must be done in the plantations every year for five years at a cost of 50 cents per acre per annum.

The working plan seems to be very closely modelled on the German plans, even more so than the one at Kiso. There are four separate parts to it, all in tabulated form: (1) The prelimi-

<sup>2</sup>The Government has authority to prohibit cutting on any private forest.

<sup>3</sup>It used to be the practise to allow individuals to plant state lands for a share of the profits. This is being done away with on account of the litigations to which it gave rise.

<sup>4</sup>There is a major office (district headquarters) in Tokyo, as well as the central office.



nary plan, giving all the data; (2) the main working plan, giving the basis of the cutting and planting plans; (3) the cutting plan, giving also the prescriptions as to what to do with the area, and (4) the planting plan.

#### STATE FORESTS OF UECHIMABE

The forest of Uechimabe is in the Aomori Dai-tin-kucho (district) at the very northernmost end of the main island of Japan. It has an area of 16,000 acres covering part of a range of hills which runs parallel to the coast. These hills are steep in the middle, about up to 300 or 1,000 feet elevation, and more gentle on their outer edges, with a flat strip of rice fields from two to five miles wide between them and the shore.

The forest was of practically pure Shiba (*Thujaopsis dolabrata*) except for occasional patches where mixed hardwoods, beech, maple, etc., would be found. The stand is more or less even aged, with excellent reproduction wherever openings occur.

Under the Daimyos the forest had been lightly cut over, and just enough taken out to make small openings in which there is abundant reproduction. The management has taken advantage of this fact and prescribed a system of natural reproduction, *the only case of natural reproduction seen in Japan*. The system used is an adaptation of Schlich's Shelterwood Compartment system with three cuttings and a period of reproduction of twenty years. They are supposed to wait five years between the first and second cuttings, and fifteen years between the second and third. As a matter of fact they admit that they will have to make one or more thinnings between the second and third cuttings unless the second cutting is made rather heavy, which would be bad, because it would favor the hardwoods against the Shiba. In general, they have considered the fellings made by the Daimyos as the first cuttings, and are now carrying out the second and third. Blanks are planted up with *Cryptomeria*. The system is really an excellent one if properly carried out. The trouble is that

they have unwisely left the markings to untrained guards, with disastrous results in some cases. If this kind of marking is continued the system will have to be abandoned in favor of clear cutting and planting. It is probable that this will be done sooner or later.

The working plan, though made by a man who had only the subsidiary forest course in the University of Tokyo, showed a good deal of care and skill. The whole forest had been mapped and divided into working circles, blocks, and compartments. The compartments were based on topography, and are for convenience in estimating and location. They were made before the estimate and then used as units in estimating, each being estimated separately. The rotation is 100 years, with a felling period of twenty years. The object is to obtain sustained yield by cutting equal areas and equal volume. For this purpose five site qualities are distinguished according to the soil and the stand. That is, the soil might be quality I, and the stand quality III. The net revenue is figured at a little over a dollar per acre per annum.

#### STATE FOREST OF NAGAKIZAWA

This forest is in the northwest of the main island of Japan, some thirty miles or so from the coast. It is really in the Odate minor office (corresponding to our National Forest), in the Akita Dai-rin-kucho (district), just south of the Aomori Dai-rin-kucho. As with most of the forests of Japan, it is in a mountainous region, some of the hills being rather high and steep. This forest is famous for containing one of the finest bodies of virgin *Cryptomeria* in Japan. It is a solid body of about 40,000 acres in extent, of large, mature *Cryptomeria*, remarkably even-aged, averaging thirty inches or more in diameter at breast height by about sixty feet, merchantable length. The stand would run from forty to fifty thousand board-feet per acre throughout the whole tract. There are a few patches of hardwoods on the edge of the forest, but these are comparatively insignificant.

The working plan, which was made seven years ago, is an excellent piece of work with a remarkably good map, as good as any to be found in Germany. It prescribes a system of clear cutting and planting with a ninety-five year rotation. The trouble is that the forest is situated within eight miles of the Kosaka copper mine, the largest in Japan, which gives off fumes of  $\text{SO}_2$  (sulphur dioxide) gas to such an extent that all the timber within that part of the forest nearest the mine has been killed. The working plan was revised five years ago so as to exclude that part of the forest which was being injured. But the damage was so great that the plan had to be revised again last year to exclude a still larger area. At present they have practically had to abandon the working plan entirely and devote their cutting operations to the areas most badly damaged. Of course, it is useless to replant the cut-over areas under such circumstances. They are carrying on experiments with a large number of native and foreign species to find something which will resist the fumes. The only species so far found is the Nara (*Quercus grosserata*), a kind of ash of little commercial value. They say, however, that the production of timber is of minor importance so long as they can keep a protective covering on the slopes. The mine authorities are offering rewards for a process which will do away with the fumes. Unless some such process is soon discovered, the whole forest of Nagakizawa is doomed.

#### VI—CONCLUSION

It is probable that the forests seen were the finest ones, not typical of the general average in the country, because one state forest seen on a special trip, not on the itinerary made out by the chief of the bureau, comprised large

areas of poor, scrubby hardwoods liberally interspersed with blanks.

(The grazing problem in Japan is noticeable by its absence, because there are practically no cattle in the whole country. Hence the revenue is derived only from the sale of forest material.)

The ordinary expenditures for 1908-1909 were \$2,199,000. This is from an appropriation which is put in the regular budget and voted on by the chamber. The extraordinary expenses, for working plans, planting denuded areas, permanent improvements, etc., were \$1,323,500, derived from the sale of isolated pieces of land. And the *net revenue amounted to \$5,000,000*, a very striking figure when we think of the comparatively small area of their forests; that is, compared with ours. It shows the enormous profits to be derived from well-managed forests in a thickly settled country, a thing which we hope to have in the United States some day.

One of the finest and most instructive things about Japan is that a large part of the absolute forest land, that is, land unfit for agriculture, belongs to the state. Such of it as is now bare is being rapidly planted up, so that it will soon all be productive. The absolute forest land in the hands of private individuals can be controlled by the state if necessary, but is managed by the owners as permanent forest under scientific principles.

This is a state of affairs which is difficult for the ordinary American of today to realize. But it is one which, the sooner it is understood and adopted, the better it will be for the future welfare of the whole country.

Forestry has been called the "yardstick" of civilization. Judged by this standard, Japan is one of the most highly civilized nations in the world to-day.



## The South's Concern in the Appalachian Project and How to Make Its Influence Felt

By JOHN H. FINNEY, Secretary Appalachian National Forest Association

THE Appalachian Forest Project, that proposed plan whereby the National Government shall acquire a forest area in the Southern Appalachians of about 5,000,000 acres lying at the headwaters of the important southern streams, is no new thing.

In one form or another, as a great "National Park," "National Forest Reserve," etc., it has been proposed for nearly twenty-five years; it has been before the Congress for the past ten years at almost every session, asking for national recognition as a national duty owed by the Nation to itself. It has, in all this time, received the earnest support and indorsement of patriotic men, women, and national leaders everywhere, of associations, scientists, engineers, geologists, agriculturists, foresters, commercial bodies, navigation, power, and manufacturing interests, almost without number. Testimony that cannot be disputed as to the value of it; as to its vital necessity to the South and to the Nation, has been piled up in an absolutely convincing manner, that this area should be acquired—two Presidents of the United States have earnestly recommended and worked for it.

The only unconvinced body seems to be the Congress of the United States!

Let us look into the basis for the South's concern: The first, because most obvious, is the timber question.

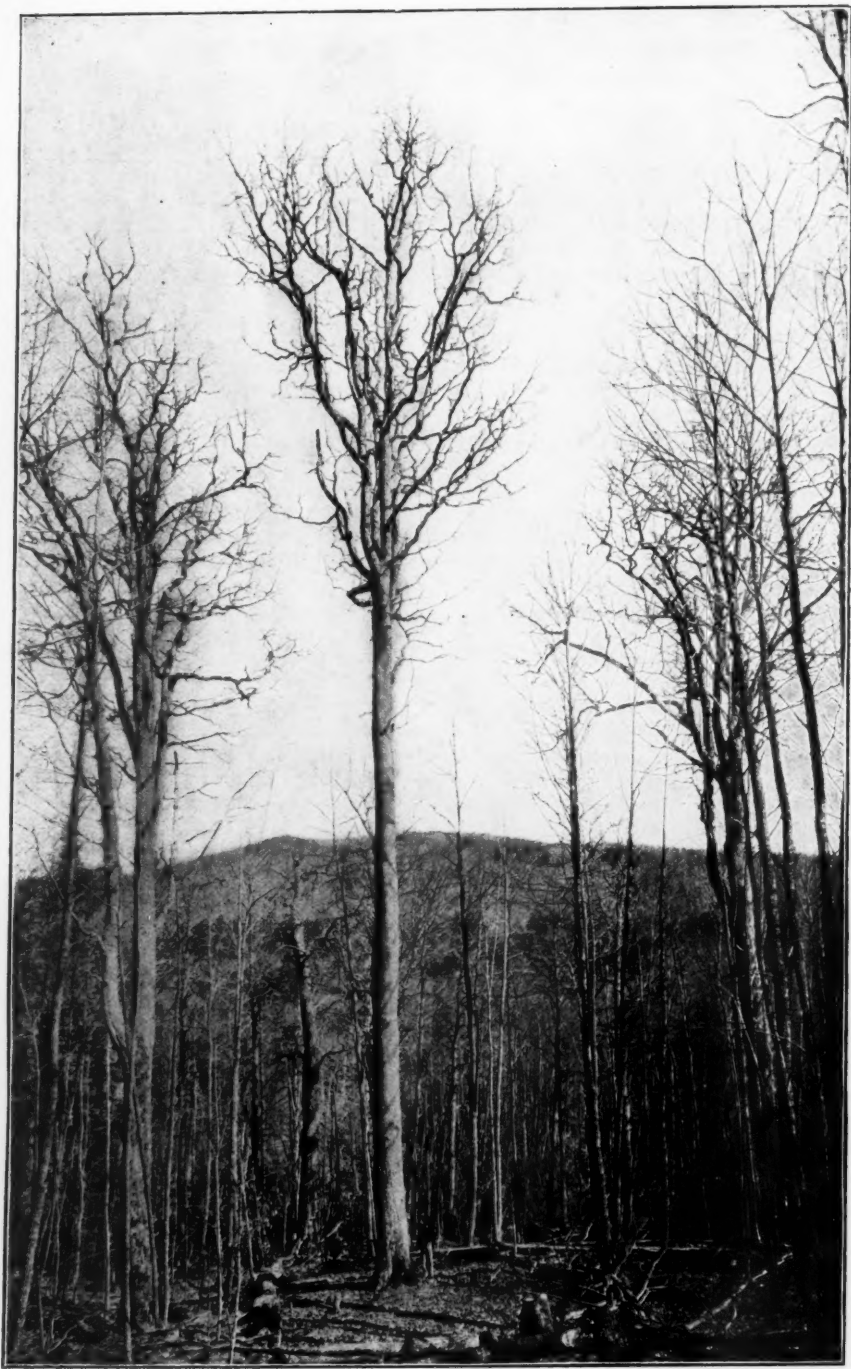
The South contains, in its 234,000,000 acres of timber lands, nearly one-half of the Nation's remaining, and its most valuable, timber. It contains, in the largest portion of the 75,000,000 acres lying within the Appalachian range, four important timber facts:

(a) That this area, which in the main

is non-agricultural, is the natural home of the hardwoods, where they most flourish and best grow, and where, in the main, *only* trees can grow; (b) that here is contained practically the only remaining stand of hardwoods in the Nation; (c) that here is practically the only remaining source of supply of hardwoods for the future; and equally as important, (d) that this area is being cut and devastated as rapidly as lumbering skill and ample capital can do it, and that a continuance of these operations, under present conditions and at the present rate, means the practical extinction of this whole timber area and industry in from fifteen to twenty years!

The second fact of the South's concern is that this vast area lying in eight states is an interstate problem involving, were it *solely* an intrastate duty to be performed by the states, the simultaneous cooperation of these eight separate states, to render any action effective—but it is more than that; for while the states do have a grave duty and a heavy responsibility (which they must in time assume in forest conservation), the largest duty rests on the Nation, because of its guardianship of the streams.

See how this is true in just one illustration: In North Carolina rise the important streams such as the Broad, the Wateree, Pedee, Saluda, Pacolet, Tugaloo, Savannah, etc. Their headwaters are not navigable; they are small streams in North Carolina; and, while useful for some power in North Carolina, they reach their greatest usefulness for power and their use for navigation solely within, and for the benefit of, South Carolina. Surely, North



Reproduction of Hardwood Forest in the Southern Appalachians. The Large Trees Have Supplied the Seed from Which the Smaller Ones Have Grown



Scene in a Typical Longleaf-pine Forest



Carolina cannot reasonably be expected to tax herself with the large investment involved in the purchase of the forest cover of these streams for the benefit of her sister state. And these same conditions apply to the whole problem, whether it be one state or another in which this forest area lies.

Were all these eight states so altruistically inclined as to work out an effective cooperative plan, the lack of money in all our southern states, and the tremendous task of getting funds appropriated, through bonds or otherwise, would prevent effective action until too late.

The National Government is obviously, as the guardian of the navigable streams, the natural and proper guardian of the headwaters of these same streams, and under either the commerce clause or the general welfare clause of the Constitution has ample power and authority to act, if and when it so wills!

It, only, has the money. It, only, can so promptly act as to save the forests before their total destruction. It, only, can intelligently handle and patrol the area thus set aside so as to most fully utilize it and make it effectively perform its varied functions.

The next fact in the South's concern is brought about through considering the forest functions in other matters than a timber supply, or its effect on navigation. These functions have to deal with the even more important forest influences, as water-power, water supply, agriculture, health, and climate.

We need not go into great detail; we know, who know southern conditions, that the controlling factors in the making of the South into a manufacturing section rest on four fundamental facts: (1) Climate, which enables us to grow, (2) cotton, on (3) fertile soil, and (4) cheap water-power.

These things are intimately bound up with the forest question, for without the forest the climate changes, the soil erodes and washes away, the cotton field becomes a barren waste, and the water-power is ruined through damaging floods or prolonged droughts.

Can a picture such as this be complacently regarded by the man who knows and loves the present fair and prosperous Southland? Can he imagine what these conditions will mean to the coming-generation South (nay, indeed to the present one!); for these conditions are not merely future possibilities nor the imaginings of dreamers or

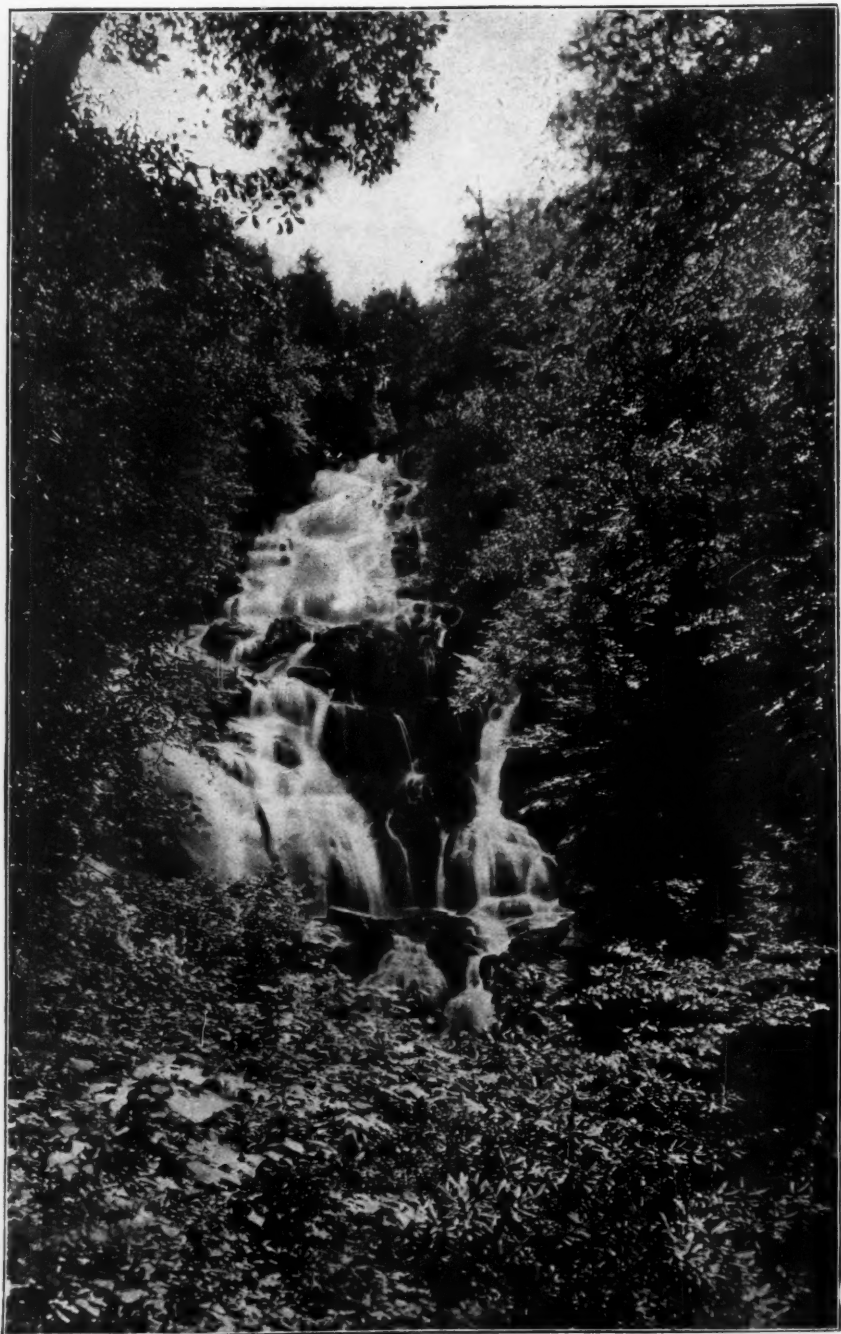


View Showing Effect of a Forest Fire. The Branches and Smaller Trees, Bent and Twisted by the Intense Heat (Page 741)





A Sawmill in Eastern Kentucky (Page 741)



Cascades Near Head of Catawba River. There Are Hundreds of Cascades as Beautiful as This in the Southern Appalachians. As Long as These Mountain Forests Are Preserved These Streams Have a Regular Flow; United They Furnish the Water-power Which Operate the Factories Valued at Increasing Millions (Page 741)



Wreck of a Railroad Bridge, Doe River, Tennessee (Page 744)



A Flooded Farm—Orchards and Fields Under Water, With Residence and Outbuildings Threatened (Page 744)

pessimists, but are the sober words of warning of students and engineers and scientists who know, and who have testified to their knowledge of conditions before Congressional committees time and time again in language as earnest and unmistakable as this.

It is likewise a sober statement of fact, that, should the Appalachian forest disappear, as it must and will if some action be not taken by the Nation, the very life of the South is at stake—its prevision and patriotism a sham, its civilization a misnomer.

Is it an unreasonable thing that we are asking of the Government? The Government's ability to do it is unquestioned; it is spending millions in irrigating western arid lands; it owns and is splendidly handling and conserving 172,000,000 acres of western forest lands; it is spending millions in river and harbor improvement; it is maintaining many agencies for the betterment of the Nation, and is wisely doing all these things.

Is not the Appalachian project in the same class—nay, is it not even more important than some of them, in the light of conditions that can only be described as critical?

This thing must be done now. Doing it now means that the National Government shall lead in a work that requires national leadership, a leadership that will finally compel the states to act in respect to the wide field covered by their duty to the forest question.

To-day, no southern state has an acre in state forests; no southern state is making a serious effort to get one, *but*, when the states have an adequate demonstration and object-lesson of this size, that forest conservation is sane and possible and profitable, surely all the states must finally resolve to have state forest areas under competent foresters; must enact adequate fire laws; must properly tax forest lands, and must do such other things as are necessary to the perpetuation of the South's large and enormously valuable timber area now in the hands and under the sole control of individual owners bent on cutting them!

Whether the cost of this to the National Government be five millions or more matters little, for it can be wisely spent as a national investment, yielding satisfactory yearly financial returns, quite regardless of the actual benefits to the South and to the Nation that cannot be measured in dollars and cents.

Dollars spent now mean the avoidance of hundreds of dollars later in costly reforestation plans such as France has undertaken; each day of delay makes the problem more difficult, more expensive—the situation more critical, the menace more alarming!

It being a thing that the Nation must finally do as a matter of self-protection, if no higher motive actuates it, *it should do it now*, and it can be brought about, if the South acts, and makes its influence felt.

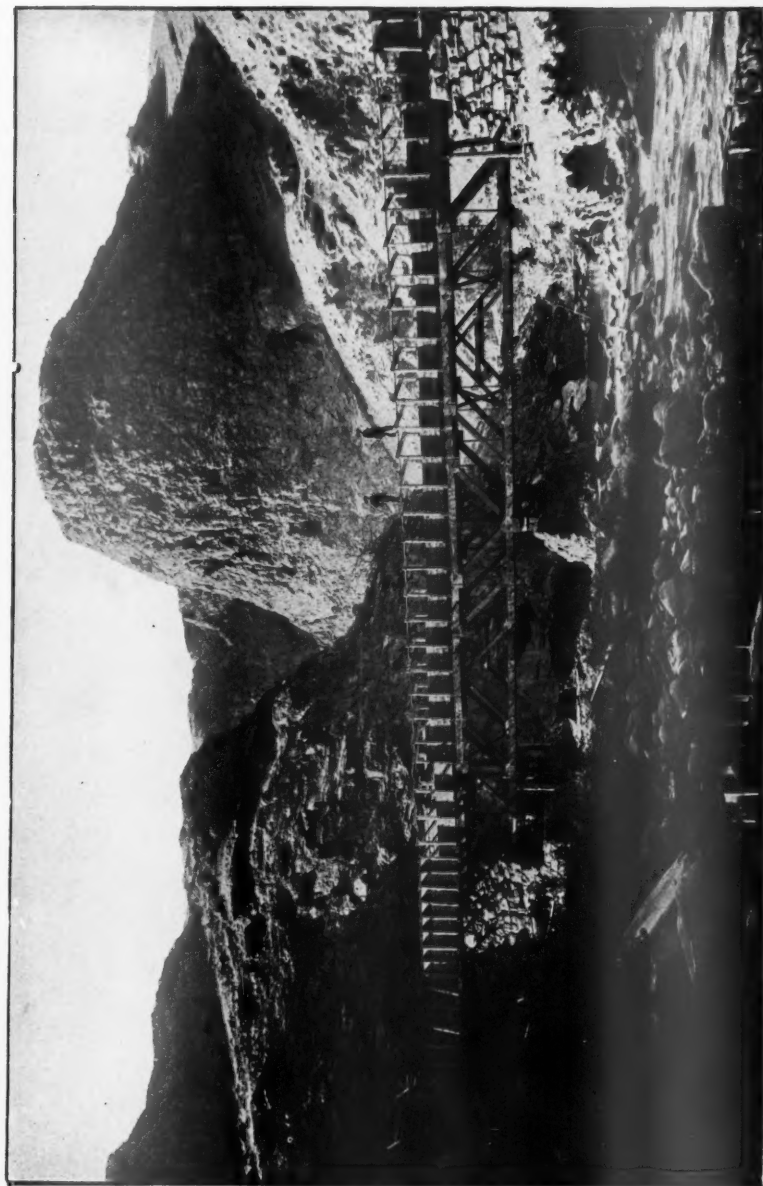
In the last Congress there was taken, on March 1, a vote on the Weeks-Lever forestry bill, a comprehensive and wise measure, general in form, providing for the purchase by the Government of forest areas at the headwaters of navigable streams.

This bill did not specifically name the Appalachian or White Mountain projects, but it was generally understood that the bill was framed primarily in the interests of these two great national reserves, as being the most urgently needed areas in the way of water protection.

Of the many measures presented in Congress in the ten years of attempted legislation on this question, the Weeks-Lever bill was not only the best and most comprehensive, but it alone, of the several Appalachian bills, came to an issue on the floor of the House. It passed the House by a vote of 157 to 147, but (because of lack of time) failed in the Senate.

How did the South vote on a matter of such vital concern to itself? This is the record: The fourteen southern states—Maryland to Texas, including Arkansas—had 119 votes. They were cast as follows: For the measure, 53; against the measure, 36; not voting, 30.

Thirty-six southern men actively against the project—some of them sav-



Conveyance of Water for Irrigation in Flumes. View of North Poudre Flume Near Greeley, Colo., 300 Feet Below Dam, Showing Canal Crossing the Stream from Which Its Waters Are Taken

agely attacking it—with thirty so indifferent that their votes were not recorded at all. Look at the details:

State	Ayes	Noes	Not voting
Maryland .....	3	0	3
Virginia .....	7	1	2
West Virginia.....	2	0	3
Kentucky .....	5	3	3
Tennessee .....	6	4	0
North Carolina.....	7	2	1
South Carolina.....	4	1	2
Georgia .....	2	6	3
Florida .....	0	0	3
Alabama .....	6	2	1
Mississippi .....	2	3	3
Louisiana .....	4	1	1
Arkansas .....	2	2	3
Texas .....	3	11	2
Totals.....	53	36	30

This is the record as it stands, and, frankly speaking, as it will probably stand, in the next Congress and in succeeding ones, unless the South can prod

indifference into action, and change misrepresentation into representation.

Contrasted with the vote of New England on the same measure, where, out of a total of twenty-seven votes, twenty-six voted aye and only one is recorded as not voting, there need be no hesitancy on the part of intelligent and patriotic southerners in characterizing the vote of our southern representatives as a reflection on the intelligence of the South and a disregard of the South's best interests.

It is not a record to be proud of (and it is said by a southern man), and it should mean such an arousing of the South as will give the Weeks-Lever or a similar bill in the next session a majority that comprises every southern man in Congress!

It should further mean that the South is determined to have this forest area; that it will closely follow proposed forestry legislation in the next session:



Bluffs on New River Forty Feet High at a Point About Eighty Feet Below Sea-level. New River Channel Rises Above Sea-level and Disappears at 280 Feet Below



that it will impress its wishes upon its congressmen; that it will attend in overwhelming numbers (as New England does) any congressional-committee "hearing" given on the bills; that each individual in the South believing in the necessity and the righteousness of the

South's demand for action in this matter will pledge himself to the forest cause and aid actively in this work.

We can win the fight at this session of Congress, but it depends on what the South does, and the South, in its final analysis, means YOU.



Illustration of a Finish Fight Between a Live Oak and a Grapevine in a North Carolina Forest

# A BEGINNER IN FORESTRY

By ANNE WARNER

## Paper Six

WHEN we returned on the 25th of January the winter had fallen thick and white upon Brunswick. The view from the Burgberg was no longer of toy villages set out on a patch-work quilt of greens and browns; it had now become toy villages set out on a shining sheet of silvery snow with sunny little trees dotted pin-like in many directions. So pretty every day! So wonderful when storms came drifting out of the gray north! And presently we—indoors or out—found ourselves in the midst of a blinding snow that whirled and swept and reeled about, and then after fifteen minutes of fury, sailed sweetly and calmly away. As the little girl, the poodle, and I all huddled together against a big tree during one of the fiercest of these blows it came to me what "with no other shelter than a tree" really meant. Uncivilized races feel first and try to explain what they feel as they learn language, but we civilized people are so well educated that we can describe everything without knowing anything about it. I have even been given to understand that some hold that knowing about things places easy speakers at a real disadvantage. I can hardly believe that, but I do feel keenly the inadequacy of words after you are thoroughly permeated by the real feeling. When I was in London and longed, with a heart-sick loneliness that no one believed in, for the forest, I found myself looking in despair on those who never would understand.

Now I am back in it and life and language, trees, and my soul, run smoothly abreast again. The gray, and

brown, and purple lights and shadows lie quiet and wait for us to come to them, and when we go there the wide silence, the soft snow, the little black flowing streams, gurgling under its icy coat, the tiny new green things piercing upward—they are all ready with a welcome. The forest is so full of interest in its wildest form—and here it is so full of its life with men. Such a wonderful inter-weaving! As we go along in the still quiet we come suddenly on the wood cutters—or on the long rows of cut and piled wood. The trees were marked before we went away. They were felled while we were absent. The largest were chained on wagons and drawn to the railroad. The next were sawed with long, thin hand-saws worked by two men each, and then corded up for sale. The smallest were cut and trimmed and swathed together in long, curious hedge-like piles. The waste and twigs the poor received gratis. For a fortnight the drawing away has been going on, and I cannot see that the trees are thinned out at all. The head forester conducted the wood sale here in the little Kurhans ten days ago. It was a bitter cold day and they borrowed the oil stove out of my guest room so that the head forester would not freeze while he sold wood.

I wish it were possible for more children at home to learn the winter life in the woods. Most children get under the trees in the summer, but comparatively few in the winter. The winter is just as full of interest as the loveliest possible summer season if one can only get a chance to enjoy it. We've been amused to see that the mole digs along under the snow exactly as if it were

earth; we've found patches out in the open where the rabbits have evidently held either a parliament or a ball, the deer make their own convenient short cuts and keep them in trim, and the pheasants when they fly low do not trouble to carry their heavy tails, but let them train on the snow. It is so droll to see where a pheasant came quietly along, where he stopped and scratched up some dinner, where he jumped about a bit to warm his feet, and then where he flew lazily off, dragging his tail.

One of the most interesting studies in a well-brought-up forest is the tremendous part played by the fallen leaves. When a tree is wastefully cut it isn't just its wood and its future growth that are lost—it's also all that annual crop of fallen leaves. What the leaves here do is a never-ceasing wonder to me. Not to speak of the joy it gave us to kick them as we walked all through October and November, or their lovely likeness to a plum-cake too thinly iced, often, now, they do such a vast amount of real labor in every thaw that I am forever amazed. The object-lesson in the prevention of floods is one

that I shall never forget again. There was a large, low place out of which a little stream meandered across a road and into a small hollow. The stream was very slow and feeble as it was choked with leaves, and Nanna took a stick and spent some time making a free channel. Then she and I wandered farther on and, returning in half an hour, found our stream again blocked. We soon learned that we couldn't free it, the leaves allowed the water to filter through and that was all. The fallen leaves are the cook and the nurse and the personal bodyguard of every tree, and, like everything else in this world, they cannot do their duty well by one without doing a great good indirectly to countless others.

As the days go on and I fail to find time to learn all the technical knowledge that I so crave, I do find that, indirectly, I am learning anyhow. As a little child learns to love books by playing in a library, so I find myself gradually becoming a somewhat experienced forester just by being very happy for two hours daily in the Lichenberger Wald.



# THEODORE ROOSEVELT

## Dynamic Geographer

By FRANK BUFFINGTON VROOMAN, F. R. G. S.

(Concluded)

### COORDINATION

A FAIR question to ask in estimating the value of any service, public or private, is "How would it have been with us otherwise?" What the country was without the Reclamation Service we have seen who knew the arid West years ago. What American agriculture would have been without national interference one could imagine who knows what farming was a generation ago. What the land would have been without a National Forest Policy the average man cannot imagine. Under the laws for which Mr. Roosevelt was responsible a hundred and twenty million acres of the public domain have been set aside to be held in public ownership for the public good, making 168,000,000 acres in all of Forest Reserve. In connection with this act of administration he sounded the note for the whole conservation policy. "It is consistent," he said, *"to give to every portion of the public domain its highest possible amount of use."* This large domain is now held for *development and use*. These reserves are for the people. The land-skinner was abroad. It became necessary for Mr. Roosevelt, when he came to office, not only to set aside the Forest Reserve, but to take the most vigorous measures to secure bona fide settlers in their rights, and to prosecute those who had unlawfully taken the land. During a period of five years of this administration, fences were removed unlawfully enclosing public land from 3,518,583 acres, and suits have been recommended on other actions, and steps

taken to remove such enclosures, from more than an equal amount. During the administration something like a hundred thousands pounds have been collected by the Government for timber trespass on the public lands, and legal proceedings taken involving trespasses of half a million pounds. During this time, there has been secured in public land cases, involving perjury, subornation of perjury, conspiracy, forgery, false affidavits, timber trespasses, and unlawful enclosures, 3,096 indictments, 871 convictions, with 251 prison sentences with many indictments awaiting trial. During the same period 7,874 fraudulent land entries have been cancelled, restoring over a million and a quarter acres to the public domain.

It was also found that large tracts of public coal lands were being illegally obtained. The President at once took measures to ascertain the extent and value of the coal areas, and the Geological Survey was directed to classify and value coal lands. It has been found that the Government still owns between seventy and eighty millions of acres of known coal fields of the West. The President immediately withdrew from all entry 67,000,000 acres of this land, and the Geological Survey fixed the prices at from two to twenty pounds sterling, which had hitherto been illegally acquired at from five shillings to four pounds per acre. This economic work of the administration, on the basis of the actual field investigation of the coal geologists of the Survey, has not only increased but has multiplied many times the return to the

Government from the sales thereof, and has prevented monopoly of the coal fields.

Another very interesting item connected with these economic investigations is the act providing for fuel and structural material tests passed four years ago. For example, the Survey has demonstrated the important fact that the low-grade bituminous coals and lignites, of which there are tens of millions of acres, formerly considered of but little, if any, economic value, can be converted into gas and used as gas fuel, with double the efficiency possible under the steam boiler. The item that ten millions of acres of coal have been doubled in value and made a national asset by one little scientific experiment successfully concluded by a Government bureau could be duplicated in many other illustrations.

Under the new arrangements the mineral and agricultural and timber resources are available to the settler with strict provisions against waste. Throughout these large areas of the public domain, the Government has made large expenditures for roads, trails, bridges, houses, telephone lines, fire-fighting accessories, and other needs and conveniences.

The principle involved in the Roosevelt Conservation Policy, while carried out on strictly historical lines, and strictly constitutional principles, is, in its practical and in its political effect, almost revolutionary. While the Government is owner of these hundreds of millions of acres, it is not as the ordinary landowner. If owned by private interests the resources would be wasted in the interest of the immediate profit. At least, such is the verdict of experience. And it is because of such a verdict that a hundred and sixty-eight million acres have been withdrawn from private ownership to start a real *public domain* and for the *common good*. A fair beginning! These resources are to be developed, not in the interest of the Government as landlord, but in the interest of the present population and their posterity forever, with the Government as trustee.

Mr. Roosevelt has constantly insisted upon the most exhaustive and scientific investigation of all the water resources of the country. During the past year over 500 stations have been maintained to determine the average flow of the rivers toward their utilization in irrigation, drainage, and power, and for the development of inland navigation.

The integrity of the great irrigation works, built and being built by the United States Government, depends on the scientific accuracy and thoroughness with which the hydrographic surveys have been made.

The division of Hydrology or Hydrogeology of the United States Geological Survey, which was organized on January 1, 1903, deals with underground waters, on the same principles as the division of Hydrography deals with surface waters, and strictly scientific investigations were begun at once in about two-thirds of the states or territories. The work is divided into six departments—the bibliographical, statistical, technical, legal, scientific, and economic. The scientific work seeks to solve such problems as the measurement of direction and rate of underflow by electrical apparatus; to make experimental field investigations of the general movement of ground water; to study the general movement of spring water; the relation of topography to underground drainage in regions of soluble rocks. The "economic" deals principally with reports and maps on the location and extent of water-bearing horizons, the depth of water below the surface, and the height to which it will rise, the quality and quantity of the supplies, and problems relating to purity or pollution of the ground waters.

In close connection with this work, also, are the features of rainfall, texture of water-bearing materials, and of adjacent land surfaces.

The economic results to be obtained from such studies depend also on the general topography, the main direction and velocity of ground waters, etc., in

order to furnish a basis for a requisite thorough knowledge of topography.

The Geological Survey is constructing a complete topographical map of the United States, in sheets of about 250 square miles, one of which is issuing every third day. Nearly 2,000 of these sheets have already been engraved, and already more than one-third of the United States has been covered. This will be as complete a map as any in the world. It is the aim to do this work so thoroughly that one may be able to trace the course of every stream, and locate every mountain and hill, with accurate knowledge of steepness and altitudes with reference to making it equally valuable to the engineers of irrigation or drainage systems or railroad extension, as well as to help the farmer who may wish to drain a swamp. To this sort of information the Geological Survey adds data, not only regarding rocks and soils exposed to the surface, but with remarkable accuracy shows what may be found at hundreds or even thousands of feet in depth.

The mapping of the catchment basins presents problems which are both topographic and geologic. The determination of the geologic structure of the depth of water horizon and of the depth of flow of each water well are all of great value in outlining artesian areas, whose charts are reduced to folios which include topographic, geologic, and economic data, and are issued by the Geological Survey.

It must be remembered that before anything definite was done, practically the whole problem had to be stated. An enormous preparatory work of scientific investigation must be laid down before the engineering work of construction could be even begun. To be sure, a great deal was already at hand, but in many fields it was pitifully inadequate. One must remember, also, that before Mr. Roosevelt's administrations began, public opinion in the United States as to the Government taking the initiative, or assuming the responsibility of a great project like the Reclamation Service or the Forest Service, or the Inland

Waterways Plan, was in a state of doubt or open hostility.

And there are still other problems to solve. Experts must be called, each to make his contribution toward the solution of the difficulties offered, from the Mississippi Delta through to Lake Michigan, and again from the muddy waters back to the very snow-drifts whence flow its primal supplies. There will be chemical problems, physical problems, geological problems, botanical problems and engineering problems. There will be projects of swamp and sanitary drainage, the making of reservoirs for the developing of water power and for impounding potable waters and waters for irrigation and navigation supplies. There will be other works for protecting slopes, river banks, bottom lands, valleys, and plains, and for conserving their soils, and many other details and problems and all of them subsidiary to the great geographical conception of opening up and artificializing and controlling the entire interior empire of the United States and Canada, tributary to the Mississippi and the Great Lakes. The idea of state control, and the realization of the ethical possibilities under certain phases of state ownership, have grown more during the Roosevelt administration than in all the rest of the history of the United States put together.

That Mr. Roosevelt has been able to accomplish so much of a definite and concrete nature which was dependent upon the technical surveys and investigations of thousands of scientific experts, and get this vast mass of material together and mapped out and organized and digested and transmuted into its proper engineering channels; that he has been able practically to educate the Nation on the subject, or put it in the way of being educated; that he has been able not only to get so many concrete engineering works accomplished, but that he has been able to inaugurate so much of ethical legislation, and ethical administration, straight away in the line of the enlargement and moralization of the sphere of the State and the extension of the sovereignty of the



State over the sphere of private exploitation, is one of the astonishing things to those who know the intensity of the individualism of the American people in all the achievements of modern American history.

President Eliot said at Harvard quite recently, "American people are opportunists; they will adopt institutions, socialistic or not, if they are practical, but they will not follow an idea beyond the stage where it becomes inefficient." All of this, and more, is exactly true, and President Eliot might have said that until the Roosevelt administration the American people were not, and even to-day are not, willing to follow an idea as far as it is efficient, or else they hesitated to make any new application of the idea, on the principle of keeping out of the water until they knew how to swim. But the time has come when policies no longer answer. The opportunist temper is inadequate. We want an idea. World-making is no piecemeal, *laissez-faire*, individualist job. The Roosevelt work is of one piece. It shows one mind and one idea. It requires that one mind and that one idea in the coordination of scientific effort, in the direction of the investigation and observations for data, in the application of one administration toward the utilization of these data, and the framing of a single engineering scheme for its support by the National Government—nothing less. The control of rivers and harbors cannot intelligently be left in the hands of one set of men in one department of the Federal Government, and that of the control of water sources and supplies left in another department of the Federal Government. This great work is of one piece; it should be administered as one scheme.

A great and immediate need of the United States Government is a new Federal department. Mr. Roosevelt created the Department of Commerce and Labor. Perhaps Mr. Taft will create the Department of Public Works. Instead of being administered with more or less duplication and omission and economic loss by the Federal Departments of Agriculture, War, Inte-

rior, and Commerce and Labor, these functions, together with such new ones as are necessary, should be synthesized and coordinated under one Federal department. While the results already achieved by the Government are brilliant, the mass of scientific data necessary to the intelligent administration of such a complicated scheme are still very meager and imperfectly correlated. So vast a scheme, upon which so many scientists and engineering experts are engaged, presents a complication and interrelation of problems which can be satisfactorily administered only by one department under the control of one mind according to one overruling idea.

#### NATIONAL PROGRESS—RATIONAL, NOT FORTUITOUS

It should be apparent by this time that we have here a new kind of politics. What we have all been taught heretofore, when, indeed, we have been taught anything on the subject, has been political science. Just what this is, nobody seems to have a very clear idea, and for the most part it has been confined to a classification of historical systems. Although it has been vaguely and erroneously confused with political philosophy, the two are as separate and distinct as either one is from the study of history.

But here we have something different. Instead of political science we have scientific politics, and it seems to be what we have been waiting for a long time. To be sure, we can find scientific politics, as, for example, in Germany, where politics are rational and not fortuitous. But in the Roosevelt scheme scientific politics is laid on democratic foundations, or, perhaps, what would be just as accurate to say, democracy has been laid on scientific foundations. This new movement seems to have come not a moment too soon in the evolution of civilization.

A swift glance ahead 100 years with Asia in possession of our industrial and military secrets, with its own unequaled natural resources untouched and our own squandered, should occasion a

diurnal nightmare for the incredible unintelligence which refuses immediate expenditure of that £100,000,000 which will save £1,000,000,000 a year, and possibly the future of our race. The future belongs to those nations who own the soil and rule the sea—whose people shall have to use and not to abuse the natural resources of the earth. There is no future to any nation without these.

The time has come in the history of western civilization for a new politics. There is something wrong with our politics; there is something the matter with our theory of life—Individualism. Anglo-Saxondom, in particular, is losing ground, and on the racial escutcheon should be blazoned WASTE. Individualism made the Anglo-Saxon great, but it cannot keep him great. Individualism has ceased to be true. Once we wanted protest—protestantism; reform—reformation; revolt—revolution. Now we want something else, something archetectonic—we want overmind—"oversoul." The infallible inspiration of the gospel of helter-skelter is succumbing to the higher criticism of the science of economic geography. For in the United States things can never be again as if Theodore Roosevelt had never been. He has not merely given us the idea; he has embodied the idea in an immortal, scientific achievement. His politics means that the principles of intelligence, scientifically applied to the physical conditions of life in North America, have not only made progress possible, but acceleration of that progress possible. It means the quintuplication of the economic resources of the people of the great Mississippi Basin. It means the renaissance and enrichment of the South, and vast good to central Canada. It means this because one man had sense enough to know that things could not get themselves scientifically done by themselves; that progress is rational, not fortuitous. What he has already achieved is the guarantee of what his scientific policies have promised, and a warrant for the hope which most Amer-

icans have been holding in a dreamy way, but which a few great minds have foreseen as an accomplished thing in future time, of a superlative destiny for this new western world, this world of the morn and the dew; this world whose vast fallow and fecund wildernesses have lain so long in the dark, while successive civilizations have depleted the potentiality of the larger and antipodal hemisphere where so much of humanity has grown old and gray.

"America," says Hegel, "is the land of the future, where, in the age that lies before us, the burden of the world's history shall reveal itself. \* \* \* It is the land of desire for all those who are weary of the historical lumber-room of old Europe. Napoleon is reported to have said: '*Cette vieille Europe m'ennuie*.' It is for America to abandon the ground on which hitherto the history of the world has developed itself. What has taken place in the New World up to the present time is only an echo of the Old World—the expression of a foreign life."

Mr. Roosevelt has worked out his idea on rational and constitutional and human lines. This was his task. His struggles for a square deal for the common people have been successful. His geographical economics have been unparalleled. But his chief distinction is that he has given an ethical and constructive democracy a chance, for the first time on the Western Hemisphere, on principles which, avoiding both anarchy and socialism, shall conserve the ends of liberty, not merely as an end in itself, but as the condition of a national moral perfection.

Facing the failure of the democracy of individualism, already about reduced to its lowest terms of economic slavery and financial despotism, and socialism ready to occupy the field by reason of sheer want of another, and more rational, program, he is the first American statesman who has wrought into deeds a fundamental body of doctrine involving a rationalization and moralization of the American democracy. The foundations of the new construct-

<sup>1</sup> Lecture delivered winter of 1830-31.

ive democracy are geographical foundations. This democracy is organized and centralized, but it avoids the common dangers of centralization in that it is democracy, *i. e.*, that it is *self-government*. It differs from the fundamental idea of the old democracy of individualism in that it is self-government in its corporate and public aspect. It is national self-government in those areas which concern the national and common good. For the very life of this democracy, and its fitness to survive, are bound up in the proposition that the whole people is fit to govern, can govern, and does govern itself.

A new era dawned in the United States with a sudden and almost revolutionary enlargement and moralization of the sphere of the State during this one administration. The National Government, *qua* National Government, has for the first time frankly acknowledged its own responsibilities in the matter of the commonwealth and the common good, and the whole American people have overwhelmingly supported the constitutional creed of Mr. Roosevelt to "promote the general welfare."

The political significance of the conservation policies is that under them the aegis of the Constitution has been thrown over an unpreempted area of human endeavor, that recognition has been given to the revolutionary doctrine that people may better work together than against each other for their common good. Results have been achieved undreamed of under *laissez-faire*. No section will profit so greatly as the new South, the stronghold of the democracy of individualism, the South looking toward a prosperity never before thought possible, because of these very conservation policies, which their own confederacy would have made forever impossible. For the Montgomery constitution expressly declared its Jeffersonian individualism in that no public improvement should ever be undertaken at the public expense.

But the South, more than all other sections, is to learn the value of the political application of scientific knowledge to human welfare through their own organ—the State, if, indeed, the

people of the South have not begun to suspect it from the Government war on the stegomyia mosquito and yellow fever. The stegomyia mosquito defied the philosophy of individualism for hundreds of years, to surrender to science at last.

The American people have shown their ethical soundness in nothing more than in the support they have given their President in his effort to reconcile ethics and politics, in his aim to guide the rebound of political theory and practise in its unmistakable reaction from the extreme of anarchy toward the extreme of socialism, and to hew the highway of the national destiny straight along the middle way, on sound, safe, and rational, and at the same time, ethical lines of historic nationality. \* \* \*

The twentieth century dawned upon the world in a state of arrested democracy, with the creed of the revolutionary forefathers discredited as not having fulfilled its promise. Conservatism was sterile and without a social program, and glued to the *status quo*. Liberalism the world over had found itself bankrupt, except where it had maintained solvency by borrowing heavily from socialism. The ultra-individualism of the eighteenth and nineteenth centuries had been a good protestant philosophy in an age of reaction and revolt. It marked the end of an era. But, as Mazzini has said of the French Revolution, it was incapable of marking the beginning of a new age, for it had no program and no possibility of a program.

It may be as well to state here that Mr. Roosevelt's political philosophy is founded on neither individualism nor socialism as a theory of life. There is a middle ground between the two, and an element of political philosophy lying outside the two, which define the ground held by the Roosevelt school of politics. Unfortunately, no one yet has been able to coin a word which will cover this ground. But the seven and a half years of his term of office have called a halt on the democracy of individualism, have stemmed the tide of socialism by the substitution of something better

than either, which, for want of a better word to describe an ethical democracy, I call tentatively Nationalism.

It is due to Theodore Roosevelt almost wholly, not only that the distinction has been made between the democracy of individualism and ethical democracy, which is not exactly, perhaps, the democracy of altruism; but that foundations have been laid for a democracy which implies that human progress is rational and not fortuitous, that its foundations are scientific, and that they do not lie in the quicksands of whimsicality and blind chance and *laissez-faire*.

A new era in American politics dates from the beginning of the Roosevelt administration. While this new era is revolutionary in its results, it is the simplest development, on conservative lines, of a principle as old as the American Republic. He has opposed two philosophies, or at least drawn a sharp distinction between them—the philosophy of individualism, that of all rights and no duties, which has found its classic expression in the Declaration of Independence, and the philosophy of duties as well as rights, of the reciprocity of the golden rule, which has found its expression in the Constitution of the United States. The trend of Mr. Roosevelt's work has been straight away from anarchy and toward law and order. It has led away from individualism, and, while not toward socialism, it has tended toward socialization, toward national organization, in other words, so far as it can be conceived from a strictly political standpoint, by scientific methods, and limited by American institutions. His position is that of the old nationalism, developed and up to date, which began to call order out of the individualist chaos of the national history from the moment Alexander Hamilton entered the debates on the Constitution; that nationalism which without cessation has been encroaching upon the political atomism of democracy—the atomism Thomas Jefferson adopted from the school of the French Revolution; the atomism whose direct lineage can be traced through Hobbes and Locke and fur-

ther back through Epicurus to Democritus, the founder of atomism and doubtless of the Democratic party, if Epicurus can be believed that Leucippus never existed. And, by the way, speaking of the political atomism of democracy, Democritus, the first consistent, and perhaps the original, Jeffersonian Democrat, conceived the universe as constituted of infinitesimal atoms floating in an infinite void. Everything happens from the accidental meeting of these atoms in this void. There is a god upon the throne of this universe, endowed with two functions, namely, mixture and separation. The atoms themselves, devoid of qualities, are regulated by a force outside, not immanent, and Aristotle has not unjustly named this god *Chance*. If this exact theory could be transferred to a theory of politics, excepting the doctrine that the atoms are devoid of qualities, you would have a pure democracy of individualism. In it you have individualism minus the selfish instinct. Endow each atom with a sovereign, selfish motive; predicate of progress that everything happens from the accidental meeting of these self-seeking atoms floating in the social void; assume that there is no immanent reason or ethic among them, but that a blind god is shooting the arrows of whimsically undirected forces at random through time and space, and you have something like an individualism so pure that Democritus and Thomas Jefferson both might have claimed it as their own.

And so the individualist and democratic conception of the American State is that of a conglomeration of 85,000,000 self-centers, in more or less juxtaposition, each moving toward something or other with a selfish and introspective instinct, and that something certain pleasurable sensations to be enjoyed by that particular organism. Each self-center pulls and struggles without common spirit or will, without archetectonic reason, or "oversoul," and unrestrained by considerations of right or wrong, except in terms of pleasure or pain. The fundamental error involved in this whole theory is that so

many selfish instincts can ever coincide, or that 85,000,000 private selfishnesses can ever be harmonious. Of course, it goes without saying that most individualist democrats are better than their creed, but there is no room in their theory for the conception of nationality or sociality. Individualism conceives no entity of the nation. But there is an entity of the nation. It is neither a convenient fiction nor a pleasing dream, nor a formula of words, nor the translucent film of metaphysical cobwebbery, nor yet a trick of the multiplication table of one multiplied by 85,000,000, or thereabouts. There is something abroad in society not accounted for in the materialism of individualism. The cash-nexus of Carlyle will not satisfy us. One cannot name it. But this is certain: whatever it is—what Jesus and Paul called "Charitas," or what Aristotle called "Philia," which was something wider than friendship—it is that which binds society together and makes human society possible. It is the centripetal and not the centrifugal forces of life. Its essential principle is cooperative rather than antagonistic. It is altruistic rather than egoistic. It is rational rather than whimsical. It is ethical rather than selfish. It is not atoms at war, and it is one Wordsworth has caught the idea—

"As leaves on the trees whereon they grow  
And wither, every generation  
Is to the being of a mighty nation."

Thomas Hill Green has taught us, here in this university, that the introduction of a doctrine of duties with the doctrine of rights involves the idea of a common life and a common good. This idea of a common life and a common good is the foundation of the politics of this modern Aristotelian, Theodore Roosevelt, and in facing the issue of the twentieth century he has opposed sharply the foundations of the Declaration of Independence of all rights and no duties, to the philosophy underlying the Constitution of the United States, which is nationality, including duties as well as rights; and he has dragged out of the preamble of

that Constitution a principle long forgotten, but a principle upon which the very Government was founded and for which it was founded—to *promote the general welfare*. This principle he has relaid on geographical foundations as substantial as the Archaean Hills.

It is not claimed by the new politics that legislation will recreate human character or reform the world, or that the State, centralized or decentralized, can ever become what Bentham characterized as a "mill to grind rogues honest." The vain regret is as old as the memory of Antisthenes, who implored the senate of his time to make horses of asses by official vote. The new democracy of nationalism claims for itself that it offers the forms of a rational association in a sphere of the State, enlarged and moralized, which will constitute a political environment where everything in the individual that is best and worth preserving will be encouraged instead of thwarted, and where the kindlier impulses of the human heart, the most of which are being choked in the maelstrom of individualism, shall have at least even chances for existence. If the State will offer a political environment which will make the public well-being possible, the public will look out for itself. The pathetic message of history is that the people have never had a chance. What they want is a chance. An ethical democracy would offer them a chance. Whether the legislative and economic forces which environ the daily lives of the multitudes are rational and ethical and social determines the limitations, and, to a large extent, the destinies of those lives. Whether they are the archetectonic constructions of rational foresight, or the unplanned or unintelligent accidents of chance, will decide whether individuals shall walk in blind alleys or open avenues.

If the scientific and ethical and philosophical contribution of Theodore Roosevelt to the United States, to the twentieth century; if his warfare with the billionaire anarchist and his defense of the people's domain succeeds in awakening the national intelligence and



the national conscience in stemming its wayward course, in outlining the path of its future development, in drawing the large outlines of the only kind of democracy in which politics and ethics can ever coincide; if he has drawn the line of cleavage where it belongs, and has set the party of State Rights over against the party of Nationality; if he has opposed the principles of anarchy and sociality, the motives of egoism and

altruism, the parties of self-interest and the general welfare, the philosophy underlying the Declaration of Independence and that of the Constitution of the United States; if he has with sufficient distinctness contrasted a political atomism with the social organism, the historian of a future age will have the right to compare him with the Fathers of his Country as a constructive statesman.





# STORIES TOLD IN RANGER CAMPS

By CHARLES HOWARD SHINN, Supervisor of Sierra National Forest

## No. 1

SIX or seven years ago I rode into a ranger camp on Bubbs Creek, and found three men there, intently listening to a young ranger from Inyo. Those were the days in which not only the total inadequacy of the force to anything except the most perfunctory patrolling of the back-country, but also our definite orders, compelled the rangers to be camped many miles apart. If I should map this ranger's district topographically, all of you who read this would be sorry for him—and for the forest (in those days the "reserve").

But the ranger, a fine and fearless but somewhat young mountaineer, was not at all sorry for himself. Plenty of pleasant people went past, along the great Kearsarge trail, or fished in the magnificent rivers, and he gave them easily and well of his really superb knowledge of that whole region. According to his lights, he was an honest ranger and resisted every temptation to leave his beat and go hunting, or to climb the peaks. Then, coming back, some of the tourists took dinner with him, and left him little mementos or surplus grub.

So I let my horse wander and crop grass, and told the ranger to "go ahead with his old yarn," which I write down here partly to show the stock from which this type of ranger springs, partly to illustrate "the times that were," but chiefly, I think, because I liked the straightforwardness of the story itself.

"Now, my uncle," he was saying, "was just that kind of an up-and-down man, and after that trouble he came to California, in 1850, when he was twenty-five years old." Evidently I had lost the boyhood of the hero of the epic, but from the solemn tone of the young

ranger, one could see that his uncle's career had become a proud family tradition.

"My uncle was mighty strong an' quiet by then, an' people was generally careful what they said to him. He was fifteen years older than my father, but when they growed up they acted an' looked a good deal alike."

The ranger, stretching himself out on the rocks, added: "An' those that knew them say I am cut off the same stick, only I am bigger—an' lazier."

Looking at the careless young giant of twenty-two, one could have given anything to have seen him truly and completely aroused in some great cause. He looked like a yellow-haired Viking up among the high places of Norway, looking for pines to build a sea dragon—under orders, for some one else to sail into the West.

"Well," he continued, "my uncle came to California, and looked around a little and noticed that every feller had to take care of himself pretty lively at times. Then he went south of San Francisco on the road to San Jose, and built a roadhouse and eating station, fenced in a patch of land (squatter title) and got him some hogs and a few cattle. Of course, he run a little saloon—every roadhouse needed that.

"In a year everybody who traveled that road stopped at the place, an' he dealt square. Then he picked up a boy of sixteen out of some deepwater ship in the bay—a boy who had run off from his home in Vermont and had learned to ride and shoot. He was kinder reddish and freckled and went by the name of Brick. He didn't talk much, and he had gray eyes that shut out everything behind them—but he got

along all right with my uncle. Didn't he have any last name? Guess he left it somewhere, same as my uncle did. Nobody called him Richard Freeman; it was just 'Dick,' and 'Dick's Station.'

"The old California pioneers will sometimes tell stories of the outlaws of those days, and of the 'Hounds' and the 'Sydney Ducks' who robbed and murdered so many returning miners. It was the crimes committed all over California by such people that led to the forming of the vigilance committees, you know.

"One day a gang of nine men rode up to my uncle's place. It was hot weather, and for once he was caught asleep in a chair. They piled into the saloon and began spreading themselves before my uncle could get to a weapon. They took all the whisky and cigars they wanted, an' treated him out of his own stock. Of course, he knew enough to be a good feller with the bunch. Brick, you see, was somewhere around outside when this happened. Not that he would have counted just then.

"After the crowd was pretty well satisfied that my uncle wouldn't hurt a fly, they went off in the gulch by a spring and made a camp. They took a ham and some other truck out of his cabin and began to get supper. Pretty soon they shot some fresh pork. It would have made a Quaker mad to see how they acted.

"Brick come home after a little, and found my uncle round behind the cabin. He had got together the rifles, and a couple of the old Colonel Colt revolvers and two shotguns crammed with buck-shot.

" 'Here, Brick,' says my uncle, 'will you stand by me in a fight?'—an' he tells Brick all about the thing.

" 'Of course,' says Brick. 'What you want me to do?'

" 'Take that gun an' that pistol. It's near sunset an' the men are at supper. You begin at one end an' I'll begin at the other, an' we'll shoot to kill.'

"My uncle an' that sixteen-year-old boy went out to the west edge of the bank an' looked down on the camp. The nine men had been drinking a lot,

but they were all sound and capable, and hardly one but had his pistol strapped on. They was eatin' supper. They was easy clost, and the brush was broken so that everything was plain to be seen, but nobody noticed the man an' the boy in the edge of the field by the fence above the spring.

"My uncle takes Brick back an' gets hold of his hand a second. 'You'll do,' was all he said, an' then they walks up an' begins to shoot the men.

"Well, in less than four minutes they killed them all. If I was a novel writer I could give you the details, an' make a great fight of it. The boy shot four men an' my uncle five, an' my uncle chose the end where the most dangerous-looking men were. It was done awful quick an' complete. I think they got a few shots back, but the sun was in those fellers' eyes an' they didn't damage my uncle nor Brick none.

"My uncle sent Brick off to get some of the cattlemen and ranchers to come over. Then they found that every one of the nine men had a bad record, and the rewards on some of them summed up \$1,500. They collected that money an' divided it. It was pay for one of Joaquin's gang, an' an escaped convict from Australia, and a big nigger from Chili.

"Brick sat and looked at his share, one evening later, so my uncle used to say. Then he remarked in the slow, scared way he had, 'I ain't sorry I shot them fellers, but I'd ruther not get into the habit of it, so I guess I'll take this cash an' go back to Vermont.'

" 'Can you stay there?' says my uncle.

" 'Yes, I can!' answers Brick, 'an' I can get rich there, too.'

"My uncle always said he had no doubt that Brick held up the Vermonters.

"About my uncle? Well, he had managed it this way, you see: His neighbors who helped to bury the dead men knew that nine had been shot. But the officers took notice of only the three that carried rewards. It didn't make much stir. He could have run for sheriff, once, on the strength of it. He went to Frazier River in the gold ex-

citement there, and then to Nevada, and after that to Inyo, and at last over beyond Panamint, a feller shot him in the back and was tried and hung for it by some vigilantes. But no one that I ever heard of ever blamed my uncle for that Madre Corte shooting over San Mateo way."

I looked at the three young tourists, and they were really pale. They had restless, unguided, novel-fed imaginations; they saw and felt all the things which the ranger had left out of his simple tale—the chill, slow wrath of boy and man; the swift, unexpected death stroke; the dead and dying desperadoes suddenly falling down into their campfire and over the outspread supper. They heard the first shots, the wild cries of terror, surprise, and rage; the few ineffectual shots of reprisal and the plunging of frightened horses, until a red and awful silence followed tumult in that green hollow of the foothills fifty-five years ago.

"It was murder," said one, "and I should have thought that even a California jury would have hung those two. I cannot believe that such a boy ever came out of the Green-mountain State."

"It was mere savagery," said another. "Your uncle could have sent for an officer and arrested the trespassers."

The third tourist was older, bronzed by wider travel, trained in some wise to the main differences in points of view between East and West. "I think that I might have liked your uncle," he said, "but Brick was the real center of the play. I suppose that he went into politics later and moved on ruthlessly to his chosen ends. He certainly could take care of himself."

"Nobody knows what become of Brick," said the ranger; "but my uncle and the cattlemen buried them nine men the next day with no help from Brick. He went fishing. And after he went back East, he never wrote no letters to my uncle—jest dropped out."

"Told you so," remarked the third tourist. "Brick was suited to any destructive game. The sight of that little seven hundred and fifty in California slugs and gold dust simply turned his predatory instincts into new channels.

Perhaps he went to New York and slaughtered his foes in Wall Street."

"Didn't take much stock in Brick, myself, even when I first heard about it," said the ranger. "But don't none of you mistake about my uncle. He never wronged a man. He played a straight game. He helped every friend of his that was down on his luck. Accordin' to my views of those times, he had to shoot those men—or else run away and leave his ranch. Before morning they might have burned his buildings, or cut off his ears to make him tell where his money was. There was no law to speak of in that neck of the woods."

The tall ranger rose with an air of finality, and went to saddle his horse to start up the trail with me. The tourists gathered up their manifold belongings and went off the other way.

"Never again will anybody hear that story from me," the ranger declared, that evening after supper. Too many people say: 'How very Californian!' in a tone that really means, 'How very wicked!' I can't see any blame coming to my uncle. Is it because he sold whisky when everybody drank it, or because he didn't get a sheriff when there wasn't a sober one within fifty miles? Wasn't that gang all armed? Didn't he take mighty big chances?"

"There, there!" I told him. "Go slow, youngster. The mistake is yours. You tell that story to tenderfeet, and it seems to them brutal. Besides, it belongs to a civilization in which they have no part. The whole situation is beyond their comprehension. They like to read in western novels of all sorts of dressed-up, excited mix-ups; your uncle's affair seems to them too cold, too deadly, too simple. Now, I will gamble that your uncle or the boy went down and took the rest of the ham, and cooked it for supper."

"I suppose, of course, they did, if that was the last ham," said the ranger, "and why not?"

"Why not, of course, if you are of the elemental sort? The fight was over; it was supper time. Yes; they replevined the ham. You would have done it."

That night, as the ranger lay in his blankets in front of the campfire, my thoughts were busy with the relations of himself and of others like him to each other and to the Service. What quiet, calm, yet undisciplined natures they had! With what straight simplicity they went forward to fateful conclusions. How immense the responsibility upon the officers of the forests to train, control, restrain, direct these hereditary forces! And I remember the dictum of an old supervisor a year or two earlier when he said to me? "If I told that ranger to shoot a man, in the name of the Government, and his reason approved, he would kill him, and never lose a minute's sleep over it. But if his reason did not approve, he would resign and leave the camp without stopping for dinner" (a serious proposition out West; to leave that way is like

refusing to take salt in the tent of an Arab).

Such was the bringing up of some of the older types of forest rangers before the days of reports and business details of timber sales, grazing permits, and land matters. They did their work, and fulfilled themselves, under very hard conditions. Their virtues have been handed on down the line, and their successors, with much better educations and fuller comprehension of forest problems, are still valuable in the main according to the degree in which, like the rangers of 1891-1903, they speak and live the truth as it is revealed to them. Honesty, fidelity, capacity for hard work, and belief in the game we are playing, are now, no less than in pioneer days, the requisites, the imperative demands of the Service upon the ranger.



## EDITORIAL

### The National Conservation Association

THE American Forestry Association will extend a cordial welcome to the National Conservation Association, the organization of which has just been announced. For over twenty years, through many of which forestry was misunderstood and unpopular, and "conservation" remained hidden in the dictionary, awaiting its Roosevelt as America awaited Columbus, this association has worked for better conservation legislation, and for wider and sounder knowledge of forestry, with all that it means to the people's welfare. To it the advocacy of the vital issues raised by the conservation movement seemed in a measure to fall, because it was the strongest and most completely organized popular association in the field, and because forestry is the keystone of the conservation arch and soils and waters look to the forest as parent, conservor, and restorer. This must inevitably influence our work in the future. We cannot, if we would, divorce the forestry cause from the whole great conservation work, but there is much to do and our work is so large, so important, and so well defined that we rejoice in the appearance of a strong combination, in which we hope to find a powerful ally, which assumes the obligation to push the conservation work along other lines.

An impression has been fostered by some newspaper outgivings that there is some rivalry or hostility between the two associations. For our part we know of none, nor reason for any. Our own work remains clear before us, and becomes larger year by year as the need of forestry and the public appreciation

of it grow. To make this magazine the representative and authoritative popular presentation of *American Forestry*, with all that the term implies in maintaining the primary forces of conservation; through it and through all the educational means at our command to inform the people on forestry and the allied subjects of soils and waters; to secure the most effective legislation in the Nation and each of its commonwealths—this is our program, and it is big enough and definite enough to enlist the support of all good Americans. We recognize no rivalry except that of who shall accomplish most for the public welfare.

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### Prevention of Timber Waste

HOW to prevent waste is one of the great forestry topics, along with taxation, forest fires, reforestation, and the other familiar headings of the forest creed. On this subject Capt. J. B. White, of Missouri, made an admirable address at the recent southern conservation meeting in New Orleans. Incidentally he paid his respects to the popular idea of a lumber trust, maintaining that it did not exist, and that high prices for lumber were not due to artificial forcing, but were the natural result of a supply inadequate to meet the demand. We believe he was right.

He discussed the proposal that the states should regulate the cutting of lumber by restricting it to a certain size, finding this impracticable, as have all professional foresters who have considered it, so far as we know. Often, he said, the smaller tree would be of more value than the larger for specific purposes. Size regulation is imprac-

ticable as a plan for conservation, and if practised, should come only as an incident. As one means of economizing production the lumberman might put up the prices for his better grades, thus widening the market for poorer stock. The use of fiber for packing boxes, which many of the box men have regarded as inimical to their business, he found not harmful, but beneficial, since it utilizes otherwise waste material and saves good lumber. Here are some further suggestions from Mr. White's address:

Tracts that are intended for forestry should be registered and exempted from taxation, only as the product is cut for market. And this law should apply to the farmer with his small wood lot, if he sets it apart for growing trees, as well as to the party having larger holdings. And when the time comes, as it some time will, that it will pay as well to grow trees as to grow other crops, then a new basis of land values according to adaptability will have come also. But wood will be more valuable. Lumber will be higher. While we will be able to grow stumpage in soft woods at from \$10 to \$12 a thousand under a favorable tax system, yet the lumber from these trees will be inferior to what we have now. It will not be like the ripe 150 and 200 year old growth which we are now cutting. Our children will not have the percentage of clear and upper grades of well-matured wood which we now have. They will have to be content with forty to fifty year growth of sound lumber with sound knots, and their finishing lumber may be what is even better than ours is now—a fine, clear fiber board that will be free from liability to check or shrink, and susceptible of a high polish.

Then Mr. White emphasized a point which he had already touched upon, the growing importance of the small trees. These, he declared, are to be the commercial timber of the future. They are already in demand for telegraph and grape poles, mining props, railroad ties, wagon hub and spoke, and handle timber, and for many other uses:

A rapidly increasing population, wanting bread as well as trees, cannot wait 200 years for trees to grow, and I do not believe it will be economy that they should. We should sell from our forests whatever is most valuable regardless of mere size and we should plant again, protect, and grow another crop governed by intelligent forestry methods. The farmer finds that he often gets more

for his young corn than it would bring him if matured. He gets more very frequently for a six-weeks'-old veal calf than he would get for that same calf a year old. So it is with lumber trees. Let us supply the market demand and keep reforestation, conserving, and growing trees for the market. Germany, France, England, and other foreign countries are coming to America for their lumber, because they buy here cheaper than they can raise it at home. Some time the market will advance so it will become necessary and profitable for them to raise their own trees, even as we will have to grow ours. Lumber to-day is worth at the mills forty per cent less than it was worth two years ago. The farmer's wheat and corn are worth twenty-five per cent more, and his cotton 100 per cent more than it was a year ago, and it is all due to the market conditions governed by the law of demand and supply.

This necessity of utilizing the smaller trees and growing more rapid rotations will be regretted by the lover of the big forest, but we shall have to recognize the compelling force of daily needs. More and more we must consider this subject of the prevention of waste. We are glad to have this discussion of it by a practical lumberman—not a last word, but a good word. There was much of the ethical spirit of the forestry and conservation movement in Mr. White's closing sentences, and we commend them for the breadth and enthusiasm that animated them:

Forestry and agriculture will work hand in hand. Each needs the other in the work of conservation and reclamation. In the realities of life we need both its poetry and its prose. We need the trees and the flowers, the golden grain and the ripening autumn days; we need youth and spring and old age, and we need most public patriotism, moral courage and human love.

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#### Who Is Able to Stand Before Envy?

**W**RATH is cruel, and anger is outrageous; but who is able to stand before envy?"

Thus spake the wise man thousands of years ago, and his words are appropriate to-day.

These reflections are called forth by another Denver outbreak. The thing which now chiefly disturbs the equanimity of the would-be land-grabber



and resource exploiter in Denver is the popularity of Forester Pinchot.

The writer begins by mentioning "the 'spontaneous' and 'enthusiastic' indorsements procured for the Forest Service by Mr. Pinchot." These, the writer declares, "are the most carefully planned and manufactured 'outbursts' of popular feeling that were ever expressed this side of a Roman mob of supes on the mimic stage."

"Just now," we are told, "the Chief Forester is competing with Secretary Ballinger for Presidential favor. \* \* \* Hence he organizes an intelligent conspiracy for popularity. And President Taft will be deluged with resolutions approving the Chief Forester and all his methods."

"And most of this 'outbreak,' " we are assured, "is all humbug."

The writer then proceeds to explain how Mr. Pinchot has carefully organized a clique, and "at every possible gathering" they do their stunt, "put over a resolution or a speech lauding him and his work, and his press bureau does the rest." This, the writer assures us, "is the rankest fake ever perpetrated \* \* \* the method of the cheapest demagogue."

Really, this Denver "continuous performance" has in it the element of the pathetic.

Here we have Mr. J. Arthur Eddy serving for months together as "temporary" president of his organization and, as he informs his constituents, with an empty treasury, devoting his time, talents, strength, and zeal to the great cause of "dividing up" our "national heritage" and parceling it out among those who can most expeditiously and certainly "make money out of it;" and all this without even the poor tribute of the praise of men.

He goes to a meeting, bravely attacks the "feudal baron" of the Forest Service who insists that our natural resources be conserved for the use of all the people, present and to come, instead of being turned over to a few Guggenheims and the like—masters of the gentle and joyous art of "getting on" by "getting others off"—and, for

these things, he must needs receive a drubbing in his own bailiwick from divers and sundry of his own neighbors, while the groundlings "throw up their sweaty night-caps," applaud the "feudal baron" as "all right," and pray that his tribe may increase.

That Mr. Eddy should be required to keep this thing up indefinitely without even being made permanent president of the National Public Domain League argues, on the part of the magnates whose interests he serves, a callous indifference that should wring the hardest heart.

Again, is there not some one in Denver who will kindly pass the basket and recoup the long-since empty treasury of the league? For business is business: printers' bills must be met, and Uncle Sam will not carry press bulletins unless the postage is prepaid.

And cannot some good soul "put over" at least one resolution commending the unselfish efforts of Mr. Eddy and his league?

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#### Labor for Public Improvements

AT THE Corpus Christi meeting, Lieut. Gov. A. B. Davidson raised the labor question in connection with waterways improvements.

It seems that the constitution of Texas bars state activities in waterways development, leaving such work to the Nation. Instead, however, of relying wholly upon the National Government to develop the streams of Texas, Mr. Davidson proposed that the state cooperate with the Nation in this work.

The state, he believed, could aid by furnishing the labor for the work; to do this, he would utilize the 3,600 convicts now maintained in idleness by the state.

This, it would seem, is as little as a state could do in promoting an enterprise so great. Yet Governor Campbell is quoted as having opposed Lieutenant Governor Davidson's scheme and favoring the development of the Texas

waterways as a national proposition, pure and simple.

In certain southern states, convict labor is utilized in draining swamps. That any one should prefer permitting a great body of men to rot in idleness in the penitentiary when they might be usefully employed in developing the resources of the state, is hard to understand.

In this connection, however, it may be pointed out that not all our unemployed are in penitentiaries. A body of them, ranging, from time to time, in size from regiments and brigades to an army, herd in our great cities or tramp the railway tracks seeking employment.

An American railway official has recently estimated that our railways destroy a human life every hour and injure a human being every ten minutes. A large percentage, it is believed, of the killed and wounded in our annual railway holocaust consists of unemployed men wandering about the country seeking employment.

When we speak of utilizing natural resources, it should be remembered that human resources rank first in importance.

In the unemployed people, some of them graduates of our leading universities, others clerks, skilled workmen, and professional men, we have a resource of far-reaching importance.

Have we reflected upon the extent to which this human resource might be utilized in conserving the sub-human, or material resources?

There is a great good-roads movement on in this country. Have we thought of the possibility of utilizing unemployed men in creating good roads, paying the expenses in large measure, or wholly, from the taxation of betterments?

Have we figured upon the number of acres of desert which might be irrigated, or of swamps which might be drained each year by the employment of these unemployed men, the bill being paid by those who use the reclaimed lands?

Horatio was informed by Hamlet that "there was more in heaven and earth

than was dreamed of in his philosophy." The same might be said with equal truth of the political philosophy of the old-fashioned statesman.

Here, right before us, is an opportunity to do a great good to a great body of hopeless, despairing people; to render a great service to the Nation in constructing highways and redeeming lands, and all by methods which need not cost the Nation a penny, but which should, on the other hand, result in a vast increase of the Nation's wealth. Why should not such proposals be seriously considered?

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#### Trouble in Illinois for the Deep-waterways Movement

THE deep-waterways movement in Illinois has struck a snag.

This obstruction is located, in part, in the Des Plaines River, in the form of a big dam built by a corporation; and, in the second place, in the supreme court of the state, which supports the company in building this dam.

Governor Deneen is deeply interested in the Great Lakes-to-the Gulf project. A part of this highway is the Des Plaines River.

This little stream rises in Wisconsin and flows into the Illinois. For reasons not explained, the Illinois and Michigan state canal commissioners, appointed by the governor, leased to this corporation—the Economy Light and Power Company—at a low figure, the state property on this river.

The company then proceeded to build a great dam and power plant at Dresden Heights, on the river, where practically the full water-power of the stream is available.

Of course such a structure would interfere materially with the deep waterways project.

Governor Deneen, in behalf of the state, started proceedings to enjoin the completion of the plant. A temporary injunction was granted by a Cook County court, but, on hearing, was dissolved.

The case went to the supreme court of the state, where the state maintained:

1. That it owned the bed of the river at the point where the dam was built;

2. That the river is a navigable stream, and that the proposed dam would constitute an obstruction to navigation; and,

3. That certain contracts executed by the canal commissioners, under which the Economy Company claimed certain rights, were void and offered no justification for the construction of the dam.

At every point, however, the supreme court has decided in favor of the corporation. The river, it holds, is not navigable; the bed, therefore, belongs to the riparian owners, including the Economy Company; the contracts referred to are valid and the corporation is entitled to build its dam.

If, now, the state is to proceed with its waterways project it must institute condemnation proceedings, get possession of the property owned by the company, and, for this property, make "just compensation," which, it is claimed, will amount to the tidy sum of some \$12,000,000.

Naturally, friends of the waterways project are disappointed. One Chicago paper, hostile to the governor, sharply criticises him for appointing commissioners who would thus alienate the state's property and embarrass his own policy.

The water-power question, it may be observed, is involved.

Governor Deneen has been proposing to utilize the water-power of the state of Illinois for the benefit of the state. In explaining his project to the governors on the trip down the Mississippi, he said:

"The state proposes to connect all navigable streams by a series of canals, to be paid for by the revenue from the sale of the water-power afforded."

A portion of this waterway, however, is now in the hands of the Economy Company at Dresden Heights, and this company evidently does not propose that it shall pass again into the hands of the state.

The counsel for the corporation is quoted as saying that the company, if so disposed, could force the condemnation of the property involved before allowing the construction of a Federal waterway; but that the company would grant the right of way without compensation *if no attempt were made by the state to take over the water-power*, and would also allow a Government lock on the dam.

All of which is interesting for several reasons.

It shows, for one thing, how a private corporation can get in the way of a great state or national enterprise.

It shows, again, how public officials, from lack, either of judgment and discernment, or of loyalty to the public interests, can permit a corporation to get the whip-hand over government, state and national.

And, finally, it shows how the courts can support the corporation in so doing.

The reader may be interested in placing this case along with some others that have occurred in Illinois in recent years.

One of these is that of the Beef Trust, in which, to the disgust of the President, Federal Judge Humphrey decided in favor of the trust and against the Government.

Another, and more recent case, is that of Standard Oil, where Judge Grosscup decided that the fine of \$29,240,000 against the trust could not hold.

And there are others—several of them.

Up to date, corporations and trusts in Illinois—not to mention other states—have fared reasonably well at the hands of the courts. Perhaps, some day, the tide will turn.

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#### The Cost of Waterways Improvement

TO PROVIDE a nation with waterways is a task for statesmen. Unhappily, statesmen do not grow on trees, nor descend by night like manna in the wilderness.

Herbert Spencer used to say that, as it is impossible to insert a normal, five-fingered hand into a glove of but two or three fingers, so it is equally impossible to put a big, more or less complicated, idea into an imperfectly developed mind.

To every one with eyes to see, and leisure and opportunity to contemplate the facts, it is obvious that the internal waterways of the United States must be rehabilitated and made available for the uses of commerce.

However, like the lion which, in Bunyan's allegory, obstructed the path of the pilgrim, a huge barricade rears itself before the eyes of a certain type of statesman when the question of waterways development is broached.

This barrier is the problem, to him apparently insoluble, of finance—the problem of “where to get the money.”

Formidable, however, as this question may appear to some, is it not possible that its size is, roughly speaking, inversely proportional to the size of the statesman?

It may be noted first that money, wisely used in waterways development, represents not an expenditure but an investment. Let a single corroborative fact be here adduced.

In the *Wall Street Journal* for November 13, a publication not overly friendly to the waterways movement, may be read from a leading editorial:

“C. W. Macara, recently president of the Manchester Cotton Association, says that the value of the Manchester Canal as measured by reduction in the cost of conveyance of raw cotton and of cotton goods manufactured therefrom, has been at least \$2,500,000 annually to the cotton trade alone.”

The same editorial points out that this canal has yielded advantages in three ways; it has reduced the cost:

1. Of accumulating raw materials from various parts of the world for manufacturing purposes;
2. Of handling food supplies, imported largely by the manufacturing districts of Manchester and adjacent points;
3. Of distributing manufactured produce.

Again, as Poor Richard taught our great-grandfathers, “A penny saved is a penny earned.” The waterways development now proposed coupled, as it necessarily must be, with forest conservation, will involve a prodigious saving.

To succeed, the waterways movement must adopt measures that will minimize overflows and floods. To appreciate the significance of this factor alone, let the pecuniary damage resulting from floods be compared with the amounts of past waterways appropriations.

The appropriation made by Congress for waterways for the year 1909 was \$18,097,945, an amount equaling about eighty-three per cent of the average annual appropriation for this purpose for the last ten years.

The United States Senate, in its report of April 11, 1906, said: “From April, 1901, to April, 1902, floods in the South, fed from the Southern Appalachian region, did a damage estimated at \$18,000,000.”

Note, again, the loss from erosion, estimated to amount, annually, for the United States, to one billion of dollars. While waterways improvement would not wholly stop this waste, it would aid materially in so doing.

Again, when sources of revenue are sought, it should be remembered that, in the United States, the real sources, like the coal beds of China, have been, as yet, practically unopened. In the recent special session, suggestions were made as to scratching the surface of some of these, but little of a practical nature was accomplished.

The bond proposition is now at once the most popular and practical device for immediate use. However, as stated before in these columns, to expend as much annually in interest on a loan as would be covered by an ordinary lump appropriation would involve no economy; its chief advantage, apparently, being in avoiding the risk of future progress “by jerks,” and ensuring a reasonable continuity of policy.

A proposition of extraordinary interest is that made by Governor Deneen to his fellow governors on their recent trip down the Mississippi.

In a word, his plan involves the retention by the Government, whether National or state it matters not, of water-powers on the several rivers, and the utilization of these powers for purposes of public revenue.

Says a newspaper correspondent who heard the proposal:

"It has been estimated that the electric power which could be made by controlling the floods of the Ohio, the upper Mississippi, and the Missouri would suffice to pay for the entire cost of the improvements within a decade."

Which brings us again to the question of statesmen and statesmanship.

On the one hand, we have the school which stands for donating the people's wealth and wealth sources, water-powers included, to corporations in perpetuity, and then raising the public revenues by indirect taxes paid chiefly by those in moderate circumstances.

On the other hand, we have the new school, discussed in our last issue, which believes that the property of the whole people should be made to inure to the advantage of the whole people.

In direct line with the creed of this second school is the proposal of Governor Deneen. It will, of course, arouse no enthusiasm among the representatives of the old regime.

But between these two schools it is the privilege of the American electorate to choose.

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#### The "Expense" of Conservation

AN EXCHANGE comments editorially upon the danger of the great and growing "expense" liable to result from "conservation and water-way schemes." It points to the "annual increase of \$50,000,000 in the appropriations," and says that the President is "advising the curtailment of all expenses."

This advice, it thinks, may be followed with the result of largely wiping out the Treasury deficit.

Our enthusiasm, however, over such economies may, it believes, well be restrained in view of the menace of "fixed charges."

Congressman Tawney is quoted as having declared that these, "in very large measure the consequences of war," are eating into the Nation's revenues and leaving no trace behind.

Furthermore, along with existing fixed charges for war and a growing military establishment, the exchange points to another prospective fixed charge, that, namely, from "conservation and waterway legislation."

This "has already been started," and "unless the utmost care is taken," may result in "another series of fixed charges." The "difficulty," we are told, "is that when these movements are given Government aid, they go forward to an extent that is very uncertain."

"The saving of \$50,000,000 in appropriations this year," it is said, "will be a very good thing, of course. But if, while applauding ourselves for this triumph of economy, we allow the Nation to become involved in other great obligations that will cling to us, our triumph will be barren."

That the fixed charges resulting from wars, past and prospective, are preposterously large, CONSERVATION freely concedes, and deplores.

But note the issues thus yoked up together—*War and conservation!*

The ancient Hebrew was forbidden to "plough with an ox and an ass together." Could the lawgiver have foreseen, through the ages, so unequal a yoking as has above been made by our contemporary, in what language, we wonder, would he have couched the terms of his prohibition?

War and conservation; waste and saving; destruction and production; tearing down and building up; wrecking a world and saving it—all to be classed together and equally condemned!

The human mind is fearfully and wonderfully made, and to follow its workings in every case has baffled the wisest. To fathom the processes whereby war and conservation could be grouped in a single pair were, indeed, a task for the alienist.



The astounding conclusion under consideration has resulted, evidently, from the failure to distinguish between expenditure which subtracts from and that which adds to the wealth of the Nation.

To be sure, the making of such distinctions is economic kindergarten work; yet not all, unfortunately, who fill space in economic discussions have mastered the requirements of the economic kindergarten. To meet the needs of such, the subject must be presented in an elementary way.

One may point out, for example, that the battleship which costs millions of dollars and, in a few years, rusts out or goes out of date, is, during the entire period of its existence, producing not a penny's worth of wealth. The best that can be said for it is that, in extreme cases, it may protect the Nation from invaders who would themselves destroy wealth and hinder production.

Over against the battleship, however, let us place, for example, the great Roosevelt dam across the Salt River Canyon in Arizona.

Here we have a gigantic Government-built structure which will make one of the largest artificial lakes in the world—a body of water twenty-five miles long, 1,200,000 acre-feet in capacity, and capable of irrigating 200,000 acres of fertile soil.

Now, in two respects the battleship and the Roosevelt dam are exactly alike; each costs a mint of money, and each is paid for, in the first instance, by the whole American people.

But here the similarity stops. For their expenditure on the dam the American people will be repaid by those who use the irrigated land; for their expenditure on the battleship the people will be repaid by nobody.

So long as it floats, the ship will continue to cost the money of the whole people; when once turned over to the water users' association, the dam will cost the whole people nothing whatever.

The function of the battleship is to destroy wealth; the function of the dam is to create wealth.

In a few brief years the battleship will go on the scrap-heap or to the bottom of the sea; the dam, however, we may rest assured, will continue to produce wealth for generations and centuries.

Now, the whole conservation policy, rightly handled, is typified by the Roosevelt dam. It will multiply wealth for ages to come; its entire cost may be paid out of a fraction of its product, and its sole end is to bless the race.

And yet we are gravely warned that "unless the utmost care is taken another series of fixed charges," analogous to those from "increased armaments," "will be provided through conservation and waterway legislation!"

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#### Let the Reclamation Service Suffer No Harm

IN A Washington paper a sensational article has just appeared. It sets forth, in substance, that the Senate Committee on Irrigation may be expected to favor a reversal of the policy of the Reclamation Service.

The plan supposed to be favored requires that the Government shall do only the difficult and unremunerative work and leave to individuals and corporations the simpler and more profitable projects.

From time to time in recent months broad hints have been dropped that influences looking to this end were at work.

The Reclamation Service is proving that irrigation pays. Whatever pays, private enterprise is anxious to enter.

It goes without saying that private enterprise has a great field in connection with the irrigation of our western arid and semi-arid lands; the important question, however, is whether Governmental activities are to be curtailed, and restricted to unprofitable operations, while the plums are to be thrown to private irrigation concerns.

Inquiry seems to indicate that, whatever private individuals may desire, there is little danger that the Senate committee will make such a recommendation.



The statement from Mr. Newell, Director of the Reclamation Service, found in our news columns, would not bear out such a conclusion. Nevertheless, as eternal vigilance is the price of liberty, so, likewise, is it the price of the proper safeguarding of the people's interests in general.

The Reclamation Service has abundantly demonstrated its right to live and greatly to extend its operations.

Criticism has been made that it has undertaken too much. A Senator, quoted as favoring private as against public irrigation, says that no blame should attach to the Reclamation Service because of the number of enterprises undertaken.

Local demands voiced in Congress, together with the law itself, seemed to leave the Service no recourse.

It was forced into work which its present funds do not permit it promptly to complete. The question now is whether Congress will enable it to complete these works and likewise to undertake others.

This same Senator bears testimony to the widespread popularity of the Reclamation Service in the West and the protest which may be anticipated should any attempt be made to impair its usefulness.

Let no backward step be taken in the work of Governmental reclamation. Whatever private concerns may do, the Reclamation Service must lead. Its business is to serve the people at cost. It works not for individual profit, but for the general welfare. The people are for it.

The President recommends, as does the Secretary of the Interior, that bonds should be issued to enlarge its funds. Let Congress act upon this recommendation.

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#### Rally for the Appalachian Bill

THE session of Congress is almost here. The fight for the Appalachian bill must be renewed.

We need not repeat the history of this legislation.

Note that the work began in the South. Now it includes New England, and its friends are scattered from sea to sea.

Again, it began in esthetics; now it is rooted in economics.

It was instituted to save the magnificent scenery of the Southern Appalachians. Now it is sought primarily to save the forests and streams of New England and the South, with the tremendous interests dependent upon wood and water.

As to wood: It is well known that our chief hardwood supply is in the Southern Appalachians. But, with the slaughter now on, these hardwoods, in another twelve or fifteen years, will be practically gone.

As a writer suggests, hardwood products may soon be expected to bear the label, "Made in Germany."

But important as is the question of wood, the question of water is more so.

To blink the connection between forest and stream is futile and fatal. For waterways men to do it is for them to follow the example of the ostrich which, to ensure its safety, hides its head in the sand.

Yet some waterways men are doing this very thing. Waterways men of prominence are denying all connection between wood and water; between forests and floods; between timber-clad slopes and the control of streams.

One of the waterways leaders in the House voted against the Weeks bill; another has recently denied categorically all faith in forests as a protection to streams, and has demanded that the forest and waterways propositions be kept absolutely separate and distinct.

This man pins his faith to the teachings of the army engineers.

The chief of these is Colonel Chittenden. As CONSERVATION readers know, his paper was riddled by Prof. George F. Swain in this magazine for August and September.

Military men are models of courtesy; they are delightful friends and companions; but, as a class, they have one weakness.

The bane of militarism is conventionalism, conservatism, adherence to

the old, both in idea and practise, till actually driven to the new.

This has been proved a thousand times. Largely because it was true, Napoleon for years scattered the armies of Europe like chaff.

The modern, scientific view of the connection between forests and streams is represented by the Forest and Reclamation Services and the Geological Survey; the old-fashioned view is represented by the army engineers.

Because, like the Chinaman, he believes that the teachings of the fathers must control the children to all generations, the military engineer of necessity repudiates the doctrine of these modern bureaus.

But if military advice on these questions is followed by America, this Nation will go down before up-to-date competitors like Germany or Japan as the old regime in Europe went down before Napoleon, or as wind-power goes down before steam and electric power.

Galileo taught that a heavy body falls no faster than a light one of the same bulk. The savants of his day laughed him to scorn. He proved his contention by dropping balls from the Tower of Pisa, but the pedants were still unconvinced.

Columbus proved the terrestrial globe to be a sphere; but the wisacres of his day tapped their foreheads and smiled.

Descartes believed that the universe is developing through evolution; Copernicus taught that the earth moves round the sun; Kepler formulated the laws of planetary motion; Dietrich Flade repudiated witchcraft; Roger Bacon taught that man may learn by experimental methods; John Barillon interrogated nature by means of chemical appliances; Harvey taught the circulation of the blood.

Every one of these men flew squarely in the face of the dominant sentiment of his time, supported by the accepted "authorities" in the field of truth.

Yet in every instance the dominant sentiment and the accepted authorities were wrong, and the advocate of the new view was right.

The viewpoint of the military engineer to-day corresponds with the viewpoint, in their days, of the "authorities" above referred to. It is the viewpoint of the man wedded to the past, and refusing to change his position.

In contending with such men, facts count for little; otherwise they might again be piled mountain-high.

The statistics published by Mr. Leighton and the Forest Service might again be massed.

Mr. Pinchot's illustration before the House Judiciary Committee might be repeated when, by pouring water upon an inclined blotter, and then upon an inclined photograph, he showed the difference between the action of a forested slope and that of a denuded one.

Up to the point of saturation, the blotter absorbed the water; the photograph absorbed not a drop.

But our waterways man says that when the forest cover has been saturated the water runs off. Who denies it? When the mulch is full, it is full, as much so as is a barrel.

But does this admission disprove the fact that, until the mulch is full, much water is absorbed, and thus kept back from an otherwise possible flood?

Again, the full blotter and the full mulch can be supplemented. For the latter, we need the reservoir.

Further, the waterways man contends that the second growth, sprouts, and brushwood found on the deforested slopes restrain the water as well as the original forest would have done.

It is admitted that such a cover exercises a restraining influence; it is not admitted that this influence is equal to that of the well-kept forest.

But suppose it were; shall we hold, therefore, that with a timber famine in sight a ragged coppice, burned over and practically worthless as a wood-producing area, is as desirable as the splendid forests which adequate protection ensure?

Our waterways friend apparently concedes that the second growth restrains the waters; will he then deny that the first growth restrains them in at least equal measure?

If not, how does he choose between the splendid forests which the Appalachian legislation will ensure and the wreck which its failure must necessitate?

Again, as is well known, Old-world countries, long indifferent to government ownership or control of forests, were at last driven to it, but after fearful loss.

Years ago, the United States Senate informed the country that the price of Appalachian lands was rising like that of the Sibylline books. Now the fact is indisputable.

When the Southern Appalachian Park bill was first introduced into Congress large areas of uncut timbered lands of average quality could be bought for from \$1 to \$3 per acre.

Now the Secretary of Agriculture, in his report on the Southern Appalachian and White Mountain watersheds, tells us that "even cut-over lands with no prospect of a timber crop inside of ten or twenty years will cost as much now as virgin lands ready for the saw would have cost eight years ago."

Such already is the price our procrastination has cost. How much higher shall we, by further procrastination, permit that price to rise?

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#### The Glavis Case

THE expected has happened. Mr. L. R. Glavis has stated his case.

The statement is a strong one: strong in what it says and in what it omits: strong in its self-restraint.

To attempt to brush such a paper aside as "a tissue of falsehoods" and as "shreds of suspicion" is vain.

As well might King John have attempted to brush aside the document handed him by the barons at Runnymede. As well might King George have dropped the Declaration of Independence into the wastebasket, or with equal profit might the present House of Lords flout the Lloyd-George budget.

Nor will it avail to quote "the President's" letter as a final rebuttal.

The suspicion is too widespread that the President had very little to do with that letter. It bears too many earmarks

of another office, and its phraseology and arguments are too familiar to those who have discussed the subject with another highly interested official.

The country now demands the facts. They should come from no biased or interested source. And, as a generation ago, the motto should be, "Let no guilty man escape."

It is said that a well-known Senator will call for all the papers in the case.

This report is encouraging. But it must be remembered that there are investigations and investigations.

The object of an "investigation" is sometimes to find the truth and sometimes, apparently, to conceal it.

In a matter of such gravity, no pains should be spared to protect the country against a "whitewash."

For it must be remembered, and never forgotten, that it is the country's interests which, in this matter, weigh most heavily.

An official here or there, or a subordinate more or less, are not, in and of themselves, the issues at stake.

Officials come and go, but the people's interests are permanent. The vital question is, "Are these interests being conserved or betrayed?"

And it is this question which renders important the incontinent removal of Glavis.

Suppose Glavis were right. What effect must his discharge, without benefit of clergy, have upon the public service?

And suppose he were not right in his conclusions, but were right in his impulses and desires—and nobody, apparently, denies the latter—what then?

Here we have a public servant convinced that important public interests are imperiled. He endeavors to protect them and is thwarted at every turn.

Finally he makes the supreme effort, and, acting on high advice, lays the facts before the highest official authority. For his pains, he is discharged by telegraph.

How, in the light of this case, may other public servants be expected to govern their actions?

A citizen applies for admission to the public service.

Before entering upon his duties he must first register an oath.

He swears that he "will support and defend the Constitution of the United States against all enemies, foreign and domestic;" that he "will bear true faith and allegiance to the same;" that he "takes this obligation freely, without any mental reservation or purpose of evasion;" and that he "will well and faithfully discharge the duties of the office on which he is about to enter." Following which, he utters the solemn objuraton, "So help me God."

To whom or what does this man pledge his fealty? Specifically, to the Constitution of the United States.

This means, of course, to the people of the United States and their highest interests.

Yet, in this Glavis case, we are given to understand that the obligation of the public servant is not, after all, to the Constitution of the United States, not to the Government, not to the people, but to his superior officer.

Should such an interpretation hold, what, we repeat, would be the effect upon the public service?

Suppose an interested or corrupt official should obtain control of a Government bureau. Every employee in that bureau must then feel bound by his oath, as well as by his economic need, to obey his chief, however detrimental such obedience might be to the public good.

A corrupt department head would, in like manner, corrupt the force of his entire department; and a corrupt or interested or ambitious President, should we ever be so unfortunate as to have one, would vitiate the entire public service from top to bottom.

And, in so doing, he would find the civil service oath, combined with the dread of discharge, his most effective engines.

Is this the object of the oath; and is such a possibility or prospect attractive?

Is it the sworn duty of the public servant to serve his master, good or bad, or to serve the people's interests, as he understands them?

This Glavis case involves more than may appear at first blush. Let Congress do its duty in the premises.



## ALL THINGS DECAY

By HERRICK

All things decay with time; the forest sees  
The growth and downfall of her aged trees;  
That timber tall, which three-score lustres stood  
The proud dictator of the state-like wood—  
I mean the sov'reign of all plants, the oak—  
Droops, dies and falls without the cleaver's stroke.

## NEWS AND NOTES

### Waterways and the National Defense

In speaking of the Lakes-to-the-Gulf Waterways, Mr. Frederic J. Haskin says:

"The United States can well afford to consider the question of constructing a deep waterway from the Gulf to the Great Lakes, for the national defense is destined to require it as much as national commerce demands it. Canada is now engaged in building a system of canals, the completion of which will permit the English navy to send its fleets into the Great Lakes themselves. For many years there has been a treaty between the United States and Great Britain providing that there should be no war vessels built on the Great Lakes by either nation. But if Canada is to extend her seaboard into the Great Lakes by canals the United States would be placed at an enormous disadvantage in case of war."

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### The Swiss Water-power Legislation

Several years ago the Swiss federal railroad management, finding itself menaced with a large surplus, decided to engage in the business of developing the immense water-power resources of the country, with the view to electrifying the railroads. Switzerland has no coal, but almost unlimited water-power. Engineers surveyed the situation and found that after the railroads were supplied with electrical power there would be a surplus big enough to supply the cheapest power in Europe to a vast system of industries.

The railroad administration went ahead with plans for this development, but found presently that more legislative authority was necessary. Appeal was made to the national assembly, but meanwhile the possibilities of private profit in water-power had impressed statesmen and business men alike, and both classes had become interested in the development of projects. With legislation hopelessly dragging and private interests grabbing for the best things, Switzerland could hardly have figured how it was any better off than the United States, with a precisely parallel condition.

But note how the Swiss redeemed their situation. The parliament showing no disposition to act, the people circulated petitions initiating a piece of legislation on the

subject, which would precisely cover the points in issue. The initiative and referendum system gave the people the right to do this, and they set about it with the purpose of correcting the shortcomings of their congress.

Results were prompt and highly satisfactory. The national legislature saw that the people meant business, and would pass the legislation without so much as a "by your leave" from parliament. So the statesmen got down to business, forgot their stockholdings in water-power enterprises, and passed the sort of legislation the people needed and were demanding. The water-power trust in Switzerland has ceased to give worry to anybody.

Wherein there may be found rather more than one lesson worthy of thoughtful contemplation by the people of these United States.—*Washington Times*.

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### Economical Water Supply

There are hundreds of locations where it is desired to elevate water for haciendas, railroad tanks, irrigation, etc., where the cost of fuel and attendants is prohibitory, and where there is ample running water with two or more feet of fall to furnish the power to operate a Rife Ram.

The Colombian government engineer, Mr. Maximo Gonzalez, commissioned by the government to make an examination of the plant installed for the Rife Engine Company of New York City, by Guillermo A. Jones, the government engineer there, reports:

"All of this work has been very carefully executed, and I cannot help expressing my admiration for the competence, constancy, and devotion of Mr. Jones in view of the difficulties that had to be overcome in carrying on the undertaking. In this installation there are three large American rams, manufactured by the Rife Engine Company of New York City, which deliver from 210 to 230 liters of water per minute, raising it to a height of sixty-five meters through an iron pipe six inches in diameter and 4,200 meters long. The minister of the government has decided to distribute the water in the town in accordance with a plan that has already been made. There will also be fountains and public baths."

### Secretary Ballinger's Recommendations

From a bulletin containing abstracts from the annual report of the Hon. Richard A. Ballinger, Secretary of the Interior, the following passages are quoted:

#### POWER SITES

In anticipation of new legislation by Congress to prevent the acquisition of power sites on the public domain by private persons or corporations with the view of monopolizing or adversely controlling them against the public interest, there have been temporarily withdrawn from all forms of entry approximately 603,355 acres, covering all locations known to possess power possibilities on unappropriated lands outside of National Forests. Without such withdrawals these sites would be enterable under existing laws, and their patenting would leave the General Government powerless to impose any limitations as to their use.

If the Federal Government desires to exercise control or supervision over water-power development on the public domain, it can only do so by limitations imposed upon the disposal of power and reservoir sites upon the public lands, the waters of the streams being subject to state jurisdiction in their appropriation and beneficial use. I would, therefore, advise that the Congress be asked to enact a measure that will authorize the classification of all lands capable of being used for water-power development, and to direct their disposal, through this department, under substantially the following conditions:

1. That the title to such lands be reserved in the Federal Government, and only an easement granted for the purpose of developing and transmitting electrical power for private and public use, and for the storage of waters for power, irrigation, and other uses;
2. That such easement be granted for a limited period, with a maximum of at least thirty years, and the option of renewal for stated periods upon agreed terms;
3. That entry shall be accompanied by plans and specifications covering the works sought to be installed, and covering the maximum horsepower capable of development at such site; also that a substantial entry fee be paid to show good faith, and that a transfer to the United States of the necessary water rights to permit of the estimated power-development be made;
4. That the construction period allowed entrymen for the development of at least twenty-five per cent of such power shall not extend beyond four years, or such further time as may be granted by the Secretary of the Interior upon a proper showing.
5. That a moderate charge shall be made on the capital invested, or upon the gross earnings of the project for the first ten years of operation, adjusted at each subsequent ten-year period, and equitably determined by appraisal;

6. That all rights and easements shall be forfeitable for failure to make development within the limitations imposed or upon entry into any contract or combination to charge or fix rates beyond a reasonable profit on the investment and cost of operation, or entry into any agreement or combination to limit the supply of electrical current, or failure to operate the plant; and,

7. That all books and accounts shall always be subject to the inspection of the department.

#### RECLAMATION SERVICE

The receipts from all sources do not give encouragement that the fund will be sufficiently replenished to enable an expeditious completion and extension of existing projects or to take up any new work. \* \* \*

In view of the importance of a speedy completion of existing projects and their proper extension, \* \* \* I believe an urgent appeal should be made to Congress to authorize the issuance of certificates of indebtedness, or of bonds against the reclamation fund, to an aggregate of not exceeding \$30,000,000, or so much thereof as may be needed. These certificates or bonds should be sold by the Treasurer of the United States from time to time as may be required by the Secretary of the Interior and the proceeds placed to the credit of the fund. They should be redeemable on call within a period of not exceeding ten years after issuance. The proceeds should be devoted to the completion of feasible existing projects and the construction of any feasible extensions thereof, and so much thereof as may be needed should be devoted to the construction of new projects in the states and territories in which the expenditures have not met the requirements of section 9 of the act of June 17, 1902.

#### THE RECLAMATION SERVICE

#### The Reclamation Outlook

Mr. F. H. Newell, Director of the United States Reclamation Service, has returned from his trip with the Senate Committee on Irrigation. Over fifty days of continuous travel have been consumed in this trip, and the Senators have viewed practically all of the projects. The report of the committee will probably be prepared at an early date. As to what it will contain, Mr. Newell, of course, has no information, but from the public expressions of the individual Senators in addresses to the water users' associations and other public bodies, the general attitude of the committee appears to be substantially as follows:

It is the expressed opinion of the Senators that it will be impossible to make any essential modifications of the Reclamation Act; that while imperfections are recognized, these are not vital, nor of sufficient importance to justify attempting new legislation, with the



risk of losing many of the advantages of the present law.

The Senators also emphasized, especially during the latter part of the trip, the fact that every dollar paid out of the fund must be returned, and that whatever may be the excuses offered, they would insist that the money be refunded to the Treasury in due course of time. It was recognized that, of course, there would be great inconvenience and in some cases actual hardship in requiring the repayment of the cost in ten annual installments; but it would be impossible to modify the law to favor certain deserving individuals or localities. The result of this declaration has been immediately manifest in the rapid increase in returns to the fund, telegrams having been received within a day after the announcement was made, showing that in one place \$2,000 had been refunded.

The Senators also were practically unanimous in the belief that work should be expedited by securing additional funds, if possible, through the issue of bonds or other interest-bearing obligations.

The results already attained justify this action.

Mr. Newell expresses himself as greatly pleased with the results of the trip because many matters of policy which previously had been criticized are now unqualifiedly approved, and he felt that the Reclamation Service is endorsed by men well informed regarding its work, and while they might disagree on details, were fully convinced of the wisdom of the act, and the effectiveness of the administration.

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#### Mr. Pinchot at the New Orleans Meeting

At the Lakes-to-the-gulf Deep Waterways Convention in New Orleans, Mr. Gifford Pinchot, United States Forester, said:

"Certain newspapers have said of late that the Forest Service has gone beyond the law in carrying out its work. This assertion has been repeated so persistently that there is danger that it may be believed. The friends of conservation must not be led to think that before the Forest Service can proceed legally with its present work all the hazards and compromises of new legislation must be faced.

"Fortunately, the charge of illegal action is absolutely false. The Forest Service has had ample legal authority for everything it has done. Not once since it was created has any charge of illegality, despite the most searching investigation and the bitterest attack, ever led to reversal or reproof by either house of Congress or by any Congressional committee. Since the creation of the Forest Service the expenditure of more than \$11,000,000 has passed successfully the scrutiny of the Treasurer of the United States. Most significant of all, not once has the Forest Service been defeated as to any vital legal principle underlying its work in any court or

administrative tribunal of last resort. Thus those who make the law and those who interpret it seem to agree that our work has been legal.

"But it is not enough to say that the Forest Service has kept within the law. Other qualifications go to make efficiency in a Government bureau. A bureau may keep within the law, and yet fail to get results.

"When action is needed for the public good there are two opposite points of view regarding the duty of an administrative officer in enforcing the law. One point of view asks, 'Is there any express and specific law authorizing or directing such action?' and, having thus sought and found none, nothing is done. The other asks, 'Is there any justification in law for doing this desirable thing?' and having thus sought and found a legal justification, what the public good demands is done. I hold it to be the first duty of a public officer to obey the law. But I hold it to be his second duty, and a close second, to do everything the law will let him do for the public good, and not merely what the law compels or directs him to do.

"It is the right as well as the duty of a public officer to be zealous in the public service. That is why the public service is worth while. To every public officer the law should be, not a goad to drive him to his duty, but a tool to help him in his work. And I maintain that it is likewise his right and duty to seek by every proper means from the legal authorities set over him such interpretations of the law as will best help him to serve his country. \* \* \*

"I believe in dividends for the people as well as taxes. Fifty years is long enough for the certainty of profitable investment in water-power, and to fix on the amount of return that will be fair to the public and the corporation is not impossible. What city does not regret some ill-considered franchise? And why should not the Nation profit by the experience of its citizens?

"There is no reason why the water-power interests should be given the people's property freely and forever except that they would like to have it that way. I suspect that the mere wishes of the special interests, although they have been the mainspring of much public action for many years, have begun to lose their compelling power. A good way to begin to regulate corporations would be to stop them from regulating us.

"The sober fact is that here is the imminent battle ground in the endless contest for the rights of the people. Nothing that can be said or done will suffice to postpone longer the active phases of this fight, and that is why I attach so great importance to the attitude of administrative officers in protecting the public welfare in the enforcement of the law.

"From time to time a few strong leaders have tried to unite the people in the fight of the many for the equal opportunities to which they are entitled. But the people have only

just begun to take this fight in earnest. They have not realized until recently the vital importance and far-reaching consequences of their own passive position.

"Now that the fight is passing into an acute stage it is easily seen that the special interests have used the period of public indifference to maneuver themselves into a position of exceeding strength. In the first place, the constitutional position of property in the United States is stronger than in any other nation. In the second place, it is well understood that the influence of the corporations in our lawmaking bodies is usually excessive, not seldom to the point of defeating the will of the people steadily and with ease. In the third place, cases are not unknown in which the special interests, not satisfied with making the laws, have assumed also to interpret them through that worst of evils in the body politic, an unjust judge.

"When an interest or an enemy is entrenched in a position rendered impregnable against an expected mode of attack, there is but one remedy, to shift the ground and follow lines against which no preparation has been made.

"Fortunately for us, the special interests, with a blindness which naturally follows from their wholly commercialized point of view, have failed to see the essential fact in this great conflict. They do not understand that this is far more than an economic question; that in its essence and in every essential characteristic it is a moral question.

"The present economic order, with its face turned away from equality of opportunity, involves a bitter moral wrong, which must be corrected for moral reasons and along moral lines. It must be corrected with justice and firmness, but not bitterly, for that would be to lower the Nation to the moral level of the evil which we have set ourselves to fight.

"This is the doctrine of the square deal. It contains the germ of industrial liberty. Its partisans are the many, its opponents are the few. I am firm in the faith that the great majority of our people are square-dealers."

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#### Southern Forestry and Conservation

An important conservation meeting was held in New Orleans on the 1st of November. The governors of the southern states were invited by Gov. J. Y. Sanders of Louisiana to meet in New Orleans with the conservation commissions of the several states for the purpose of discussing steps necessary for the further conservation of the natural resources of the South. The Louisiana Forestry Association met with this Congress. Governor Sanders presided and delivered an address of welcome at the morning session. This was followed by an address of welcome by Judge I. D. Moore, representing the mayor of New Orleans, and the reply to

these addresses was delivered by the Hon. W. H. Milton, of Florida. At this session an address was delivered by the Hon. Henry E. Hardtner, president of the Louisiana Conservation Commission and the Louisiana Forestry Association, his subject being especially the forestry conditions of Louisiana and the South. He illustrated his arguments with a review of the forest experiences of foreign countries. Part of Mr. Hardtner's address will be published in the next number of this magazine. This was followed by an address on the conservation of our waterways by the Hon. J. E. Ransdell, president of the National Rivers and Harbors Congress.

In the afternoon Capt. J. B. White of Missouri, chairman of the Executive Council of the National Conservation Congress, spoke on the prevention of timber waste, his address being a broad, practical treatment of an extremely practical subject. At the conclusion of Captain White's address, President Hardtner introduced the Hon. Gifford Pinchot, National Forester, saying that the South owes him a debt of gratitude that cannot be measured either in words or in any material compensation. Mr. Pinchot's address was on the general subject of conservation. He was received with enthusiastic applause. Among other things, he said that this great work of conservation will be carried out by the joint earnest cooperation of men and women throughout the country. Men experienced in politics say that there are two things which must be conveyed to the people. One is to get clearly into the conscience of the American people that this is a great moral question, and the moral side will win. If a moral question anywhere exists it is certainly the conservation question. Another thing is that to ensure success you must keep the thing constantly before the people. With all the felicitations to ourselves for what we have done in this matter of conservation and what we propose to do, we should realize that public sentiment stands behind conservation, and that we must use every means in our power for the development of our ideas and that we must save always and see that the people get the benefit of our resources, not for the few, but for the many.

The next speaker was Dr. Herman Von Schrenck, chairman of the Missouri Conservation Commission, on some practical phases of the forestry question. Dr. Von Schrenck gave special attention to the topics of taxation, fire protection, education, and state reservations.

Hon. F. J. Grace, commissioner of forestry of Louisiana, delivered an address on forestry in Louisiana which will be published in this magazine next month, and this was followed by an address on constitutional law by the Hon. F. C. Zacharie.

In the evening there was a symposium presided over by Gifford Pinchot, with ten-minute addresses on the subject, "What Is

Conservation Doing in My State?" In this symposium the Hon. John Barrett spoke for North and South America, the Hon. D. W. Baker for Maryland, Hon. S. D. Redding for Arkansas, Hon. W. P. Lay for Alabama, Dr. J. Hyde Pratt for North Carolina, Commissioner E. J. Watson for South Carolina, the Hon. P. St. Julian Wilson for Virginia, Hon. Hugh Maxwell for West Virginia, Hon. W. H. Milton for Florida, Gov. E. F. Noel for Mississippi, Hon. H. P. Gamble for Louisiana, Hon. J. Pope Cowan for Kentucky, Dr. H. Von Schrenck for Missouri, Hon. W. Fleming Jones for New Mexico, and Hon. R. F. Burgess for Texas.

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#### Republican Club for Conservation

The Republican Club of New York City—the largest club of its kind in the country—has unanimously declared for the conservation of natural resources and the Weeks-Lever bill.

At its regular meeting on Monday evening, November 15, the national committee—Hon. Warren Higley, chairman—made an extended and able report on the conservation of our natural resources, which report was read and received by the club with enthusiasm, and the proposed resolutions were unanimously adopted, as follows:

"Resolved, That the Republican Club of the City of New York declares in favor of the policy of the conservation of our natural resources as inaugurated by President Roosevelt and unanimously indorsed by the governors and representative citizens of the several states at the noted White House Conference in the spring of 1908, and approved by President Taft. And be it further

"Resolved, That this club urge upon Congress such legislation as will secure national control of the Appalachian and White Mountain watersheds, substantially as set forth in the 'Appalachian-White Mountain Bill,' as introduced into the last Congress."

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#### Forestry Chairman, Federation of Women's Clubs

The present chairman of the Forestry Committee of the National Federation of Women's Clubs is Mrs. F. W. Girard, 44 Bay View Avenue, South Norwalk, Conn. About a year ago Mrs. Girard succeeded in that office Mrs. P. S. Peterson, of Chicago, who was inadvertently referred to in the October number of this magazine as the present chairman of the committee. Mrs. Girard is deeply interested in forestry, and is continuing with enthusiasm the work inaugurated and developed among the clubs of the federation by her predecessors.

#### The Corpus Christi Inland Waterways Meeting

The Inland Waterways Meeting at Corpus Christi, Tex., opened on October 21. One of the chief objects sought by the convention is the inter-coastal canal from the Rio Grande to the Mississippi, an important function of which is held to be the regulation of railway rates.

As an example of the effectiveness of water competition in regulating rates, Congressman Rufus Hardy mentioned a case in which cotton charges of \$2.75 were levied from Corsicana to Galveston, a distance of 261 miles, against a rate of 85 cents from Memphis to New Orleans, a distance of 451 miles.

Congressman James L. Slayden described this project as an effort on the part of the people to become independent. He pointed to the example of New York, the Empire State, now expending \$100,000,000 on the Erie Canal, which has already cost her fifty millions, which canal she expects to make available even for ocean-going vessels. Such work, he claims, asserts the dignity and right of a state in an impressive way that might well command the attention of other communities that talk a great deal more about state sovereignty.

Congressman Slayden referred to a steamer trading between Galveston and Liverpool, which took out a cargo of 26,000 bales of cotton requiring 486 cars to deliver the cargo to the ship. "That," he declared, "indicates why it is so much cheaper to send your produce to market by water."

President Taft attended the meeting, and urged that the country's waterways be improved, and at the earliest possible date, by the issuance of bonds, if necessary.

Governor Campbell of Texas expressed his belief that the canal would return to the pockets of the people of the state \$3,500,000 annually.

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#### Meeting of American Mechanical Engineers

The thirtieth annual meeting of the American Society of Mechanical Engineers will be held in the Engineering Societies Building, 29 West Thirty-ninth Street, New York, December 7 to 10.

A number of interesting professional papers will be read, to be followed by several valuable reports.

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#### The Wonder of It All

Speaking of the Ballinger-Pinchot controversy, the *Minnesota Forester*, for October, says:

The wonder of it all is the vast wave of interest which has swept the entire country from sea to sea. This clash of officials which would ten years ago have had but an inch of space in the official news of a Wash-

ington paper has occupied column after column in thousands of papers scattered throughout the entire country. The strongest opposition to the order came from that portion of the country from which the Secretary hailed, where the Forester was formerly most bitterly cursed. It was the growl of the people when the "trusts," through a branch of the National Government, reached for the bone which they had always held so cheaply.

That bone is the great resources and natural wealth of the United States. It has always belonged to the people, but only in very recent years have they realized its value or taken the trouble to safeguard their rights.

The conservation of the natural resources is now a live question. The people have risen to claim them for themselves and posterity. The forests are the most important of these resources, the foundation on which many of the others rest.

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#### Good Roads Propaganda

In the week of December, 6-11, the Southern Commercial Congress and the National Rivers and Harbors Congress meet in Washington City. During that time the Office of Public Roads, in Washington, will keep open house, thus enabling all who visit the city to come in contact with some of the most skilled road engineers in the country. Mr. Logan Waller Page, director of the Office of Public Roads, has requested Mr. J. E. Pennybacker, chief of road management, to give an illustrated lecture before the Southern Commercial Congress. In addition to the lecture the exhibit hall of the congress will contain enlarged photographs of bad roads and good from various southern states; and photographs showing the before and after of some roads that have been improved. In addition there will be models of different types of road construction. There will be also several films of moving pictures shown during the lecture illustrating the processes of road making in motion, and also illustrating the effect of automobiles on the road bed. The Southern Commercial Congress will print and distribute in Washington the latest information regarding road progress of the South so as to encourage effort in every county of the South and also to produce the conviction that road improvement pays the county that undertakes it. Over 2,500 invitations have been mailed to county commissioners throughout the South. The first county in all the South to pay the way of an official to this practical good-roads exposition is Woodward County, Oklahoma.

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#### The Biltmore School Peripatetic

The Biltmore School, which Dr. C. A. Schenck has so long and successfully conducted on the Vanderbilt estate near Asheville, N. C., is about to become a peripatetic

institution. Several months will be spent in study in the forests of Germany. The classes in the school have closed and the students have left for their homes to make final preparations for sailing in the party, November 9, on "The Potsdam" from New York.

The plans include many trips to various parts of Germany, and adjacent countries. The party includes fifty-six, forty-five of whom are students. Four of the remaining eleven are instructors. The remainder are young ladies of the city who have joined the class. More students would have gone if permitted by the management.

The requests for membership for next year are equal to the number for this year. The course as now planned will give opportunity for study in every kind of forest. When the party returns in the spring, the work will be resumed at Pisgah forest. The school will not have its headquarters on the estate, but at the same time the forests of the Vanderbilt property will be the basis of much of the work.

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#### Hurricane Destruction on the Mississippi Coast

Mississippi's coast is some seventy miles in length and is followed closely by the Louisville and Nashville Railroad. Says the New Orleans *Picayune*: "The recent hurricane which raged along that coast inflicted serious damage upon the railroad mentioned, stopping its operations for several weeks, but other quite considerable injury along that coast was the undermining and carrying away of much of the shore at several of the prominent coast resorts. At each of those places a broad and level driveway, which extended along the water front, was the delight and charm of life there, and in many places it was completely destroyed and obliterated, so that in order to restore it, the dwellers along the route must either move their houses farther back from the new line of beach made by the waves or a new road must be built out into the water.

"In view of the damage done and the losses suffered, there has been voiced a demand that the National Government shall give protection to that coast by building some sort of a breakwater to receive and fend off the fury of the waves."

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#### Mr. Herbert A. Smith at Brattleboro

Mr. Herbert A. Smith, of the United States Forest Service, recently addressed the citizens of Brattleboro, Vt., on the subject of forestry. In closing his remarks on the National Forests, he said:

"This property of the Nation's is on the whole an undeveloped property. Its period of high productiveness will come later, when railroads and the increase in population have opened up the country and created a greater demand for the timber. In

foreign countries the governments which own forests make an annual profit of \$2, \$3, or even \$5 an acre from their forest lands, but to get this profit they must also spend heavily. Our outlay is less than 2 cents to the acre and our national forest force supplies about one field man to every 125,000 acres of land to be cared for, yet even so they are doing magnificent work in protecting and developing these forests. Altogether our national forest force is a little but very effective army of about 2,000 men. I think you have a right to be proud of the work they are doing for you."—*Journal*, Montpelier, Vt.

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#### Commercial Importance of New Hampshire Forests

The commercial importance of the White Mountains is the subject of a bulletin just issued by the Agricultural Department, the author of which is Philip W. Ayers, forester of the Society for the Protection of New Hampshire Forests.

Mr. Ayers makes five principal points in showing that the New Hampshire forests are of great commercial importance.

Because they contain a timber supply near the principal markets, where the high price of lumber is already working a hardship; because the White Mountains are the source of several important rivers and the preservation of their forests is necessary to protect navigation, water-power and domestic water supply, and because the health of people from many states who seek rest and recreation in the White Mountains is a national asset.

Mr. Ayers quotes figures to show that the rise in the price of standing timber and lumber has been very great in New England during the last few years, due to the exhaustion of the forests. Only about one-tenth of the area of northern New Hampshire is agricultural land.

As a striking instance of the commercial importance of the New Hampshire forests, Mr. Ayers gives some facts and figures about the wood pulp and paper industry of New England. The total investment in these industries was \$108,000,000 in 1905, and the paper mills of Massachusetts, Connecticut, and other states depend upon the New Hampshire forests for their raw material. Mr. Ayers dwells upon the wasteful methods of lumbering that are employed and the resulting loss from forest fires, which devastated 85,000 acres in 1903 alone.

The fires destroy the productive qualities of the soil, so that it will not support vegetation for many years. In this connection Mr. Ayers urges that fires would be largely a thing of the past if the White Mountain forests, similarly to the National Forests, were placed under the charge of the Federal Government.

Taking up the water-power question, Mr. Ayers says that the total investment in industries dependent upon the water of the Merri-mac, Connecticut, Saco, Androscoggin, and Kennebec rivers is \$250,000,000. These industries, with thousands of persons employed in them, cannot exist without water-power.

As regards navigation, Mr. Ayers shows that the combined navigable length of the streams in 146½ miles. This is interfered with by silt deposited in the stream beds. He quotes Prof. George F. Swain, of the Massachusetts Institute of Technology, C. C. Goodrich, of Hartford, and A. M. Schoen, of the American Institute of Electrical Engineers, to show that navigation is interfered with by destroying the forests on the watersheds of streams.

The object of Mr. Ayers' pamphlet is to show the necessity of Congress enacting legislation for the protection of New Hampshire forests. Mr. Ayers is a strong advocate of the Weeks forestry bill.—*New Haven, Conn., Palladium*.

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#### Louisiana Forestry Association

Louisiana, as becomes the second state in the Union in lumber production, is awakening to the importance of forestry, and has a live state association well under way. The officers of this association are Hon. Henry A. Hardtner, president; W. O. Hart, vice-president; Mrs. A. B. Avery, secretary; Robert Roberts, jr., treasurer, and the executive council is composed of these officers and of two members at large: Mrs. J. D. Wilkinson and Harry T. Gamble, Hon. Charles P. Johnston from the first congressional district and Hon. F. J. Grace from the second. The annual meeting of the association will be held on the first Tuesday of January. The association is growing rapidly and deserves the support of every one who is interested in conserving and replacing the forests of the state. The address of the secretary is Mrs. A. B. Avery, 254 Stoner Avenue, Shreveport, La.

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#### Practical Work for Minnesota Forestry Students

Forestry students of the Minnesota Forest School were given a fine opportunity the past summer to acquaint themselves with the actual conditions of a forester's life. Work was found in western states for all those who desired to put their vacation time to the best advantage in their chosen line of work. This work was not supposed to combine high salaries and practical experience, but on the average the students came out about even on the money question; and, besides, acquired a practical experience which no amount of school could get them.—*The Minnesota Forester*.



### Fighting Moths with Searchlights and Fans

To use a Gatling gun to kill a sparrow would be considered a most shameful waste of energy.

In Germany, however, they are employing the great force of electricity to kill moths, and the results obtained have been so satisfactory that the plan may be followed in this country.

It was because the forests of Germany were being devastated by moths that it was finally decided to try electricity.

By the use of an electrical device these insects are being exterminated at the rate of nearly half a million a day.

The new method involves the use of electric light at night. It was tried first at Zittau, Saxony, where the moth known popularly throughout Germany as the "nun" was doing untold damage to the trees.

It was found that the insects were most active between the hours of 10 p. m. and 1 a. m., and that they were inevitably attracted to bright lights.

A little experimenting showed that the greater the light the greater the attraction. The flame of burning wood drew them slightly; acetylene or magnesium lamps proved more effective, and the electric arc light proved most powerful of all.

Where a gas lamp was located near an arc light, the former was found to be practically deserted, while the latter was infested by multitudes of flies and moths.

Near the forests of Zittau were the municipal electric works. The entire stock of arc lamps on hand was utilized, the lights being linked together so as to furnish the most powerful light possible.

The effect of this brilliant illumination was to attract the moths of the forest in swarms, although the forests were several miles away. Thousands fell to the ground with singed wings, the heat generated by the powerful electric arcs being considerable.

The success achieved in this way suggested amplifications. Instead of the arc lights alone, powerful searchlights with a current of forty amperes were mustered into service, the intense rays being directed upon the forests.

To each searchlight were linked two arc lamps, which served to concentrate the fluttering moths. Between the lamps was placed a powerful suction ventilator, in front of the outlet of which was stationed a piece of wire netting.

When this contrivance was operated the slaughter of the insects which is accomplished was beyond all expectations.

Attracted by the bright illumination, the moths advanced in great hosts, and were dashed against the wire screen as soon as they came within range of the powerful suction ventilator.

The suction was caused by an electric motor, which produced 1,200 revolutions a

minute, and sucked through about 2,800 cubic feet of air in the same period.

About 141 pounds of moths, or 400,000 of them, were killed in a single night by the use of this device. The method has not yet been used in America, but it may be found necessary to adopt it in the near future.—Boston, Mass., *American*.

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### Forester Gaskill at Work

In a recent interview, Mr. Alfred Gaskill, secretary of the state board of forestry of New Jersey said in substance: An expenditure of about \$9,000 in preventing forest fires has saved not less than \$250,000 in New Jersey during the past year. By extinguishing one forest fire \$20,000 worth of cranberries were saved. The forestry board is not only fighting fires, but cultivating trees. There are 2,000,000 acres of forests in the state, covering almost half the state's area. These forests, however, have been so abused that their value has been almost extinguished, being worth, on the average, to their owners less than \$1 per year, while the forests of Wurtemberg, German, whose size, population, and conditions are similar to those of New Jersey, are worth \$6 an acre net to their owners.

New Jersey now owns about 10,000 acres of forest reserves, and expects soon to purchase 4,000 acres more.

The state should protect itself against the gipsy and brown-tail moths from New England.

The elm-leaf beetle has already got into north Jersey and is killing hundreds of elm trees. An appropriation of \$5,000, Mr. Gaskill thinks, would enable the commission to drive out these pests and prevent the threatened invasion. He says it is only a question of paying a small sum now or being compelled to pay a much large one later.

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### Maine Forestry Law a Success

The Hon. Edward E. Ring, state forest commissioner, says the law creating a Maine forestry district and providing for forest-fire protection in unorganized townships this season proved to be a great benefit.

Speaking of the law that provides for taxation in unorganized townships for the purposes of fire protection, Commissioner Ring says that of the \$64,000 raised \$10,000 remains unexpended. Fourteen new lookout stations were built and equipped; additional wardens were employed, and tools for fighting fires were distributed. The state has now a total of twenty-two lookout stations. More are to be erected next year.—*Christian Science Monitor*.



### Germans Planting Forests in China

In a portion of the Celestial kingdom earnest efforts are now being made to re-establish a forest-cover by planting. Consul Wilbur T. Gracey, of Tsingtau, China, reports that the Germans in that region are making successful attempts at reforestation.

When Tsingtau was occupied by the Germans about eleven years ago the hills were found bare and barren, with only a sporadic growth of scrub pine and weeds. Plans for reforestation were at once made, and about 2,965 acres have already been planted. About half of this is planted in acacias, the balance in pine, larch, walnut, oak, ash, maples, and alders. So successful has this planting been that the point has already been reached where the sale of timber can be made. Small branches are sold for firewood, and some of the timber is used for mining purposes. The sale and exportation of acacia is expected to become a considerable source of revenue during the next few years.

The work of reforestation has been retarded by lack of moisture, but especially by insects. Caterpillars have been especially harmful.

During 1908 over 7,000,000 caterpillars were gathered by hand, smashed, covered with lime, and afterward used as fertilizer. This method has been successful in protecting the greater part of the plantations, but on the mountains on the border of the territory the trees are eaten bare. Acacias appear to withstand the attacks of the insects better than any other species; and the summits of the mountains are now being planted with these trees in an effort to check future destruction. In addition to these enemies, Chinese thieves are another source of difficulty, and on one occasion a band of thirty-six thieves was captured in the act of stealing wood.

In spite of these drawbacks, however, the work has been so successful that the Chinese government is now undertaking forestry schemes in a number of places under advice from German experts. This work centers about Mukden, Manchuria.

The first Chinese forest school was established at Mukden two years ago. Six hundred and twenty-five acres have already been set apart for cultivation, and 24,710 acres are to be purchased for afforestation.

Three large mines in China, in the provinces of Ch'ili and Shansi, which are under the management of Europeans, are making plans for afforestation, and the Shantung Railway is planting acacias along 260 miles of its track. This, however, is simply a beginning of the work, and the Chinese government now has in contemplation the inauguration of extensive afforestation work in different parts of China.

### Forester Hawes Utters a Warning

State Forester A. F. Hawes, of Vermont, says of the situation in that state:

"Lumbering in the old way is responsible for the conditions in Vermont. The mountainous, or central part of the state, and Essex County in the northwestern part, have been greatly injured by this method of stripping the land clear of forest and leaving it to take care of itself. The new growth can just as well be made to produce as valuable a crop of lumber as the one removed, or even a more valuable one.

"Not only does the thoughtless cutting of trees from the land without regard to the future detract from the wealth and future prosperity of the state, which has found lumbering one of its most profitable industries, but it takes money out of his own pocket. The floods which last week overflowed the banks of the rivers in that state and caused a large number of mills to shut down might not have occurred but for the stripping of the mountain sides, thus letting the snow melt quickly.

"One of the most important functions of the office of state forester is that of fire warden. The fire warden in each town is the local warden, and they are all under the direction of the state forester, who, with two assistants, last summer made a thorough investigation throughout Vermont as to forest fires, causes, amount of damage, and means of protection.

"The state forester will cooperate with lumbermen and farmers desiring to improve their lands and prevent them from going to waste."

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### To Merge Nova Scotia Timber Lands

Two Americans have been endeavoring to secure a merger of every acre of the timber-producing land in Nova Scotia Province. They state that they are representing American capitalists who are willing to invest \$5,600,000, the idea being to bond the lumber properties, the requirement being that the properties must have an output capacity of 200,000,000 feet annually. They say that the output of lumber in the province to-day is 150,000,000 feet, but that this can readily be increased to the amount desired. The nucleus of this contemplated enterprise is already in operation on the Clyde River, in Shelburne County, where 94,000 acres have already been purchased, and 16,000 acres more near by. This company is now erecting mills and settlement houses in Shelburne County, and figure that they will cut 3,000,000 feet during the first year. A connecting railway will be built, also dams and sluices.—*Paper Trade Journal*, New York.

### Preventing Adirondack Forest Fires

Lookout has been maintained at fire observation and signal stations located on Whiteface Mountain, Mount Morris, Blue Mountain, and Gore Mountain by the State Forest, Fish and Game Commission of New York during the past season. That the territory under observation has been free of any dangerous fire throughout the summer, something which has not happened before in years, is probably due to the fact that all forest fires originating this year were discovered in their incipency by the mountain-posted lookouts, and extinguished by fire rangers before they gained enough headway to be destructive.

So successful has been the plan of preventing forest fires that the forest, fish and game commission has decided to build and equip about twenty more stations on minor peaks in the Adirondacks and Catskills, so as to more thoroughly protect the state and private lands which have heretofore been exposed to the danger of devastation by fires arising from chance sparks from locomotives or matches from careless hunters and campers. At a recent meeting of the four state fire superintendents with Commissioner J. S. Whipple, it was planned to extend the fire-protection system which has proved so efficient this year, so as to cover all the wooded territory of the northern part of the state.

The stations built and those planned have an equipment which includes a range finder, telescope, topographical map of the country within the watchman's range of vision, and quarters for the lookout to live in. Each observation station is connected by telephone with the superintendent of the fire district in which it is located, and the superintendent has at his command, by telephone, two fire rangers in each township throughout his district. The plan so far has worked very satisfactorily, enabling fires to be nipped in the bud.

The construction of the system in the Adirondacks involved the expenditure of a considerable sum of money. Nearly 100 miles of new telephone wires were strung, and the entire northern New York lines of a telephone company subsidized to complete the extensive connections required. New wires were strung into the very heart of the Adirondacks and upon mountain sides which previous to then had been climbed only by the most daring. Trails were blazed through the virgin forest and the century-long solitude of craggy mountain peaks was broken by the blast of station builders.

The commission contemplates an educational campaign looking to an amendment of the constitution which will permit cutting the fire line through state forests that firefighters may be more effectively used. A large part of the acreage burned over by the forest fires of 1908 are to be replanted with pine seed-

lings next year. A million young trees were this year planted on burned and waste lands in the Adirondacks by the state and by private land owners.—Condensed from *Boston Transcript*.

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### President Hill for Conservation

In the present instalment of the series, "Highways of Progress," now appearing in the *World's Work*, President James J. Hill says:

"Practically speaking, our public lands are about all occupied. Our other natural resources have been exploited with a lavish hand. Our iron and coal supplies will show signs of exhaustion before fifty years have passed. The former, at the present rate of increasing population, will be greatly reduced. Our forests are going rapidly; our supply of mineral oil flows to the ends of the earth. The soil of the country is being impoverished by careless treatment. In some of the richest portions of the country its productivity has deteriorated fully fifty per cent. These are facts to which necessity will compel our attention before we have reached the middle of this century. To a realization of our position, and especially to a jealous care of our land resources, both as to quantity and quality, to a mode of cultivation that will at once multiply the yield per acre and restore instead of impairing fertility, we must come without delay. There is no issue, in business or in politics, that compares in importance or in power with this."

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### Forestry on Private Estates

In point of variety and scope, the forest work done on the Biltmore estate in North Carolina is remarkable. The forests, which cover 130,000 acres, are made profitable by the production of various forms of material.

Four million feet of lumber, 5,000 cords of tannic-acid wood and fuel, a thousand cords of tanbark, and several hundred cords of pulp wood are cut every year. At the same time, the forest, through wise management, is bettered and is steadily increasing in value. Workmen employed along the boundaries of the forest do duty as fireguards. Thus fire protection is secured at least throughout all the accessible parts of the tract.

In connection with all lumbering operations permanent logging roads are built. These minimize the present cost of transportation and will greatly reduce the cost of marketing future crops. Thus the extension of the roads is steadily adding to the investment value of the forest.—*Harper's Weekly*, New York.

## RECENT PUBLICATIONS

"Wild Flowers and Trees of Colorado." By Francis Ramaley, Professor in the University of Colorado

This attractively published little volume is intended as an introduction to Colorado plants. It deals with the subject almost wholly from the point of view of the botanist, and probably will be of little interest or value to the forester.

No attempt is made to cover more than a few of the wild flowers of the state, which are briefly described in popular language and illustrated by photographs and drawings. The distribution of the flowers in altitudinal zones is taken up quite fully, however, with an ecological discussion as to the causes of this.

Forest formations and forest trees are taken up in some detail, but the author's discussion of the causes of the distribution of the different species and types is not very convincing. Professor Ramaley's desire to emphasize the necessity for proper forest protection unfortunately leads him to discourage forest management by making the very broad statement that if illegal cutting is prohibited and fires kept out the forests will take care of themselves. Exception must also be taken to his sweeping statement that, "Unless grown on bottom lands, all trees planted in Colorado must be irrigated or else well cultivated and protected during the first few years after being planted," which, if true, would of course make planting for commercial purposes on a large scale impossible.

The book contains a key to the identification of all trees found in the state with a description of each species, illustrated by photographs and pen and ink drawings, which will undoubtedly be helpful to those desiring to become acquainted with the flora of the state. A bibliography of the articles dealing with Colorado trees is also included.

S. T. D.

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"Andaman Marble-wood or Zebra-wood (*Diospyros kurzii*, Hiern), by R. S. Troup, Imperial Forest Economist to the Government of India"

This publication is the first of a series dealing with some of the more important Indian timbers. It contains a sample of the wood and a description of the tree, but gives particular attention to a discussion of the structure of the wood, its weight, strength, seasoning qualities, and uses. The

publication will be of especial interest to wood merchants, engineers, architects, and others interested in the utilization of Indian timbers.

S. T. D.

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"National Hickory Association, Circular No. 3"

This circular consists of a report of the third annual meeting of the association, papers on "Forest Conservation," and the "Time Required to Grow Hickory," by Mr. Kellogg and Mr. Ziegler of the Forest Service, and a discussion of Eucalyptus as a suitable timber for vehicle stock. The President's address calls attention most forcibly to the rapidly decreasing supply of hickory and the necessity for prompt action by the association to determine the amount of standing timber and to inaugurate reforms in the method of cutting and utilizing the wood. Mr. Ziegler's paper is a partial summary of a bulletin on the commercial hickories of the United States to be issued by the Forest Service, and contains much valuable data concerning the growth of the different species under different conditions.

S. T. D.

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"Practical Farm Drainage," by C. G. Elliott; New York, John Wiley & Sons, 1908

This little manual of drainage is a rewritten edition of a book which first appeared in 1882. It is intended "for the use of farmers and students," particularly those who have no experience in drainage and kindred matters. While many of the author's suggestions will prove very helpful to inexperienced workers, the book suffers from an unsatisfactory arrangement of material and from a certain lack of clearness in the descriptions of methods and processes. Whether the average farmer could, with the aid of this book, prepare a sketch map showing elevations, such as are illustrated on page fifty, or even accomplish the use of a plane table, as described in Chapter X, it is doubtful. Furthermore, many of the illustrations are poor, and the style shows signs of hurried writing.

Some chapters, however, should prove of great value. The chapter on special problems in drainage deals excellently with several difficult subjects; that on drainage of irrigated lands should prove very valuable to farmers in the arid West. The book is well printed and carefully indexed.

N. H. G.

"Transactions of the Royal Scottish Arboricultural Society, Vol. XXII, Part II, July, 1909."

The number is devoted mainly to a discussion of the report of the Royal Commission on Coast Erosion and Afforestation, which recommended the planting of the enormous area of 9,000,000 acres of land in the United Kingdom, at an annual cost of approximately \$10,000,000. This proposal and the method suggested for carrying out the work are thoroughly discussed by such eminent authorities as Dr. Schlich, Professor Somerville, Dr. Nisbet, Mr. Ribbentrop, and others. The discussion takes up very thoroughly the question as to the advisability of starting planting work on such a tremendous scale, and covers the economic aspects of the problem very fully. To those who are interested in the problem of state forest planting on a large scale, this issue will be of special interest and value.

There are also several articles on other subjects, such as afforestation of waste lands in Europe, trees of California, and the effect of smoke on trees, which are, as usual, of much interest. S. T. D.

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#### Recent Books on Forestry, Written in English

- Familiar Trees; G. S. Boulger. New ed., Vol. 1-3. 1906-7. Illus. Cassell & Co., London.
- The Utilization of Wood Waste by Distillation; W. B. Harper. 1907. 156 pp. Illus. St. Louis Lumberman, St. Louis, Mo.
- British Trees; R. V. Cole. Vol. 1-2. 1907. Illus. Hutchinson & Co., London.
- Wayside and Woodland Trees; a pocket guide to the British sylvia; E. Step. 1907. 182 pp. Illus. F. Warne & Co., London.
- Seaside Planting of Trees and Shrubs; A. Gaut. 1906. 101 pp. Illus. Country Life, London.
- The Pruning Book; L. H. Bailey. 1907. 545 pp. Illus. McMillan Co., N. Y.
- North American Trees; N. L. Britton. 1908. 894 pp. Illus. Henry Holt & Co., New York.
- Trees of Great Britain and Ireland; H. J. Elwes and A. Henry. Vol. 1-4. 1906-9. Illus. Privately printed.
- Our Trees: How to Know Them; C. M. Wed & A. I. Emerson. 1908. 295 pp. Illus. J. B. Lippincott Co., Philadelphia, Pa.
- Forest Entomology; A. T. Gillanders. 1908. 422 pp. Illus. Wm. Blackwood & Sons, Edinburgh and London.
- A Concise Manual of Silviculture for the Use of Forestry Students in India. 1906. 240 pp. Supt. of Government Printing, Calcutta.
- Indian Forest Utilization; R. S. Troup. 1907. 257 pp. Illus. Supt. of Government Printing, Calcutta.
- A Manual of Forest Laws Compiled for the Use of Students at the Imperial Forest College, Dehra Dun. 1906. 100 pp. Supt. of Government Printing, Calcutta.
- A Manual of Elementary Forest Zoology for India; E. P. Stebbing. 1908. 229 pp. Supt. of Government Printing, Calcutta.
- Trees and Their Life Histories; P. Groom. 1907. 407 pp. Illus. Cassell & Co., London.
- Wood: A Manual of the Natural History and Industrial Applications of the Timbers of Commerce; G. S. Boulger. Ed. 2, 1908. 348 pp. Illus. E. Arnold, London.
- Wood Products, Distillates and Extracts; P. Dumesney and J. Noyer. 1908. 320 pp. Illus. London.
- Our Wasteful Nation: The Story of American Prodigality and the Abuse of Our National Resources; C. Rudolf. 1908. 134 pp. Illus. M. Kennerly, New York.
- Trees: A Handbook of Forest Botany for the Woodlands and the Laboratory; H. M. Ward. Vol. 1-5, 1904-9. Illus. The University Press, Cambridge, England.
- Forest Finance; C. A. Schenck. 1909. 44 pp. Inland Press, Asheville, N. C.
- The Study of Evergreens in the Public Schools; C. M. Weed. 1908. 30 pp. Illus. State Forester's Office, Boston, Mass.
- Our Forests and Woodlands; J. Nisbet. 1909. 348 pp. Illus. J. M. Dent & Co., London.
- The Practise of Forestry: Concerning also the Financial Aspect of Afforestation; P. T. Maw. 1909. 503 pp. Walter & Walter, Brockenhurst, England.
- The Tree Book; M. R. Jarvis. 1908. 132 pp. Illus. John Lane Company, London and New York.
- Indian Woods and Their Uses; R. S. Troup. 1909. 491 pp. Supt. of Government Printing, Calcutta.
- An Analytical Key to Some of the Common Flowering Plants of the Rocky Mountain Region; A. Nelson. 1902.



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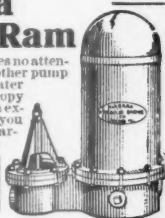
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II. Total, with exemption from all further payments:  
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For Patrons, \$1,000.

Draw check to the order of the American Forestry Association

Membership coincides with the calendar year

S. A.

### Nominations for Membership

The activities of the National Office of the American Forestry Association are limited chiefly by its resources. These are derived almost wholly from its members in the form of dues. Every member is urged to aid in increasing the membership. Kindly fill out the enclosed blank form, lengthening the list, where possible, by attaching and filling blank sheet. The list should then be sent to

EDWIN A. START  
Secretary American Forestry Association  
1417 G Street Northwest, Washington, D. C.

I hereby nominate the following persons for membership in The American Forestry Association:

**Name**

**Address**

.....	.....
.....	.....
.....	.....
.....	.....

Signed.....



## To the Members:

Your Board of Directors conclude their last annual report with the following:

"Inland navigation, deeper waterways, water powers, and economical manufacturing therewith, floods, soils, irrigation, drainage and the public health, as shown in detail by one of our folders, are all fundamentally dependent upon and related to Forestry. This larger field of conservation and utilization of all our natural resources plainly places upon our Association duties which should be heartily assumed, and diligently discharged.

"In closing, it should be said that, in comparison with the work remaining to be done, the work already accomplished by all the forestry forces combined is slight. Destruction of resources proceeds without abatement. Sentiment now developing should be intensified, and focused upon local, state and national governments, that legislation and administration may accomplish the ends without which all our efforts are vain.

"The American Forestry Association is a leading agency for general propaganda in this field. Its efforts are strictly limited by its means. Where it receives hundreds, it should receive thousands of dollars for the prosecution of the great work before it. For this arm of power it looks to its members. Their dues are practically its only resource. Each member may, however, enlist other members, and by so doing, render to his country a patriotic economic service of great value."

*Use blank on the preceding page and enlist another member*

JAMES D. LACEY

WOOD BEAL

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# ARE YOU

Interested in Southern  
or Pacific Coast Timber?

We furnish detailed reports as to the QUALITY of the timber, giving average TOP and BUTT diameters, average lengths and number of trees on each 40-acre subdivision.

We submit reports covering details as to logging conditions, cost and most feasible methods of logging each 40-acre or sectional subdivision of each tract.

We also furnish a TOPOGRAPHICAL map of all tracts located in mountainous districts, showing every elevation of 100 feet throughout the tract with OUR OWN engineer's report showing locations of most feasible routes and grades for logging roads.

We can furnish sufficient data regarding ANY tract of timber which we have examined to convince you whether the tract is what you want or not. Personal inspection of any tract we may offer you will be found just as represented.

We are in a position to offer some exceedingly attractive TIMBER properties in the SOUTH, in BRITISH COLUMBIA, and on the PACIFIC COAST. Also a few going mill operations with ample timber supplies in South Carolina and Mississippi.

We furnish detailed reports of amount of STUMPAGE on each 2 1/2- 5- or 10-acre subdivision of each forty.

We employ expert PACIFIC COAST CRUISERS to check all estimates made on Western Timber.

We offer HIGH CLASS Timber Properties only, which have been placed in our hands for sale.

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